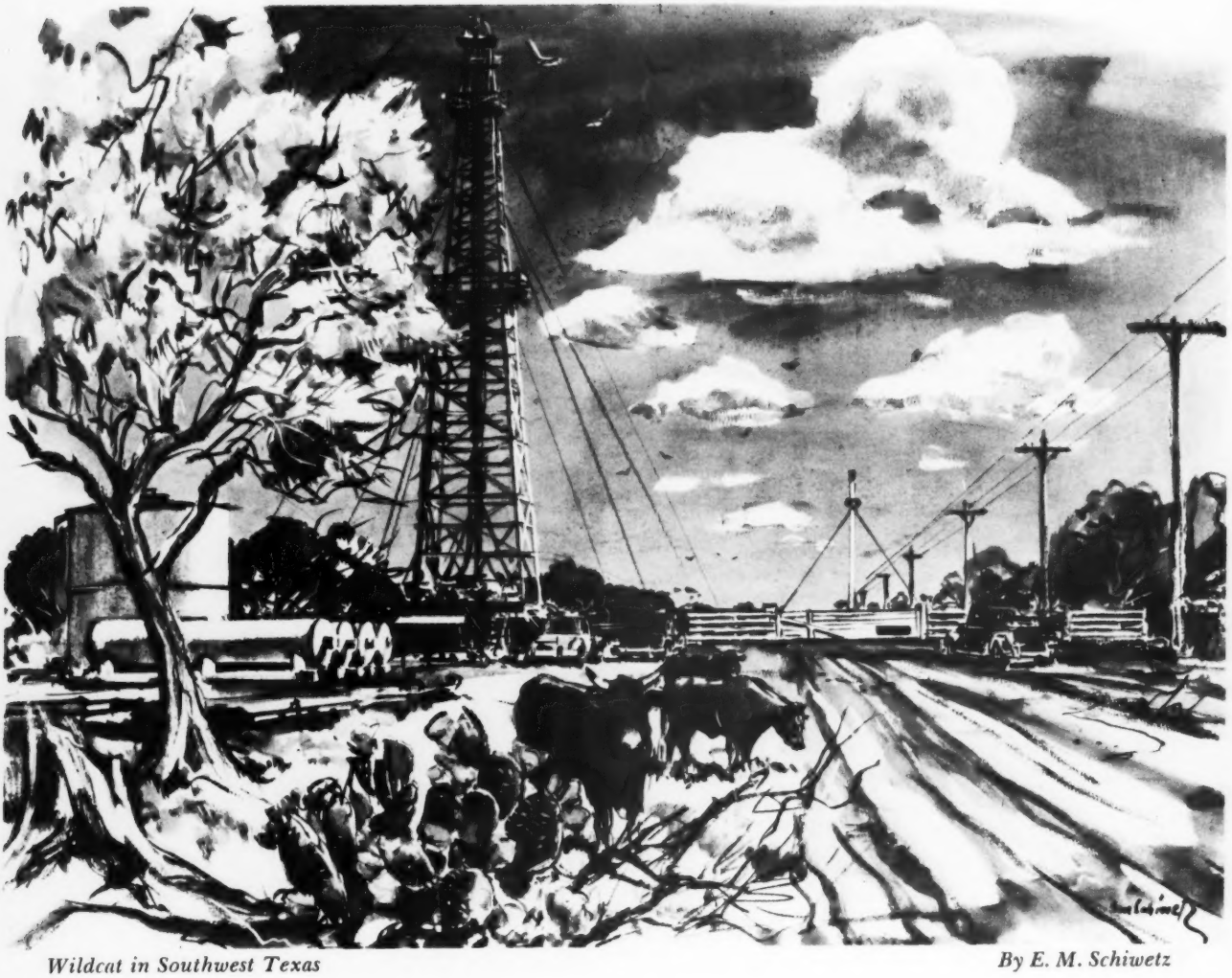

Wildcat in Southwest Texas — *By E. M. Schiwetz*

The HUMBLE WAY

NOVEMBER-DECEMBER, 1949

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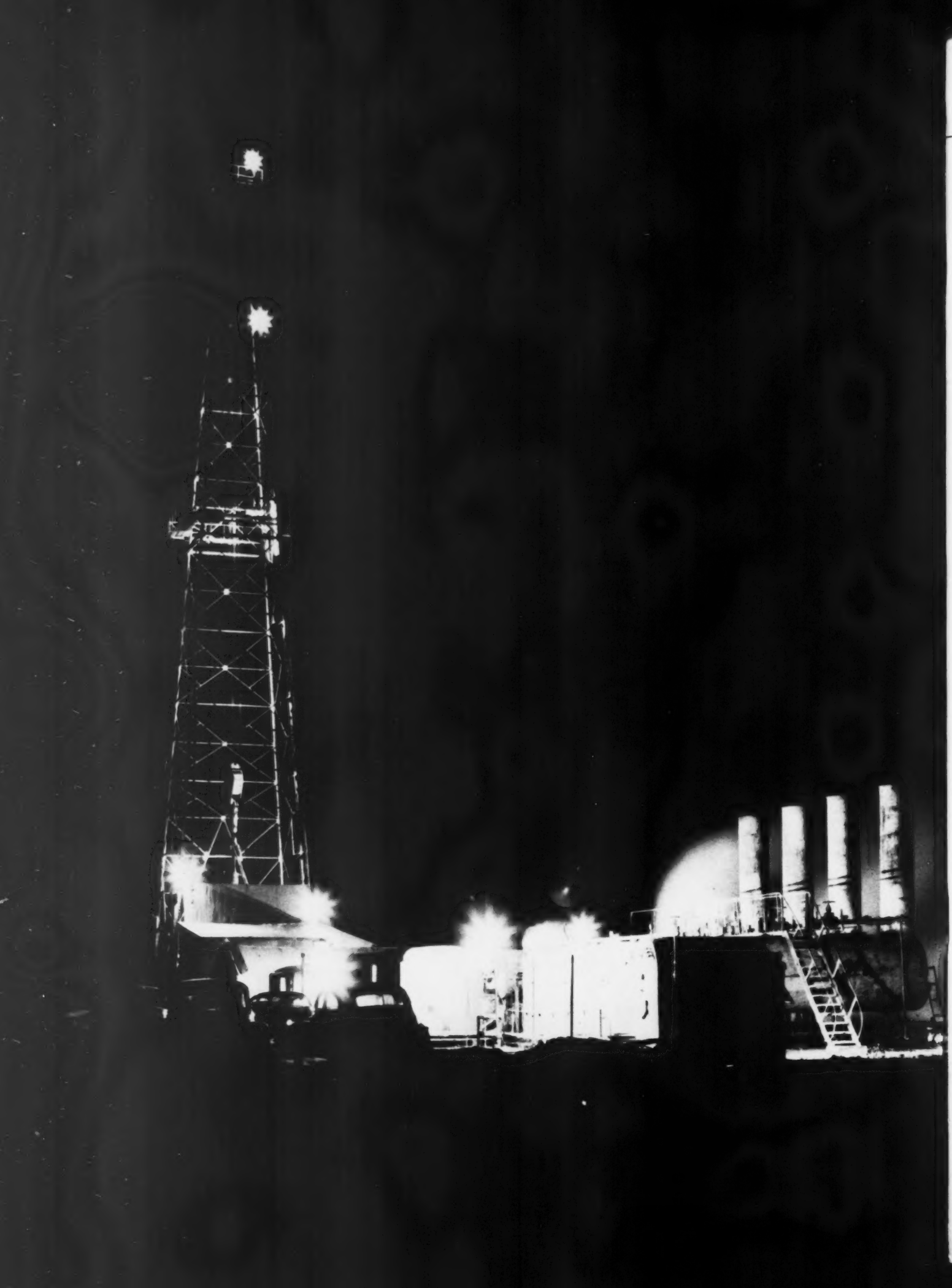


The HUMBLE WAY

NOVEMBER-DECEMBER, 1949
VOL. V No. 4

A Christmas Story

This is a Christmas story.

Like all good Christmas stories, it is simply told, straight from the heart. There is much in this true story to remind one of another Christmas long ago, when Mary and Joseph, weary from their journey into Bethlehem, sought a lodging for the night and found no room in the inn. Like that beautiful story of the First Christmas, this tells of a journey and of seeking a lodging for the night. Here it is, just as Everett Parrott, of Danville, Iowa, wrote it—something to warm the hearts of Humble people everywhere:

"As an elderly couple, my wife and I decided, last year, to try to miss the cold and snow of Iowa winters for the first time in 60-odd years. We bought a small house trailer and headed for McAllen, Texas.

"On our way as we drove south we began to find Humble service stations. I had never before even heard of your Company. Well, on our way from Houston to McAllen, night overtook us. We were worn out, and when we came to what we thought was a small village we turned in to see if we could find a place to park the car and trailer and spend the night.

"A gentleman came up to the car and told us it was one of Humble's oil camps and not a village at all. He said there was no trailer court there of any kind, and that the nearest town was Refugio, 11 miles farther down the road. We told him how tired we were, and how badly we needed a place to park and spend the night. He said in that case we could pull over to the service building and stay all night. He connected our light cord so we had light.

"It was the night before Christmas Eve, and after we had supper he invited us to come over to their recreation building and join their Christmas party that evening. How nice of him! It cheered my wife and I so much on this first Christmas so far from home—the first Christmas we had ever spent away from our children and grandchildren. Yes, we discovered that Texas and Humble have some mighty fine people.

"The next morning he refused to take pay, gave us a piece of ice for the trailer, wished us well, and said if we came by again at nightfall, we were welcome to stop and get off the highway."

It might have happened anywhere, at any Humble community. Strictly speaking, there was "no room in the inn," but kind hearts took these strangers in, made room for them, and made them welcome. They tell what it meant to them:

"Right there I decided the name Humble meant something besides cold business, and I then began to drive into the service stations bearing your sign. During our three-months stay in the Valley, I made it a point to buy Humble products always when possible. Why? Because one of your employees did my wife and I such a kind service when we were tired and worn out and overtaken by darkness. It is grand to know there are such kind, helpful people in the world and that you have them in your employ."

This Christmas story ends with something of real significance to every Humble man and woman. It is a statement, in the man's own words, of principles that have been a part of the Humble tradition since the Company was founded:

"My wife and I expect to head the trailer back to the Valley again in the near future, and I will sure welcome the first service station we come to on our way bearing the big Humble sign. I had never heard of your oil company, living away up here in Iowa. But I found out in Texas it is really a big company. I wonder if my wife and I discovered the secret of its bigness and growth? Is it in the helpful, fine, and friendly service to the public? It could be."

In a blaze of light, drilling continues around the clock on one of the more than 800 wells drilled by Humble in 1949.

CONTROLLED QUALITY

Regular Laboratory Tests Maintain Product Quality

CUSTOMERS are the final judges of Humble product quality, but the Company's Refining and Sales Departments know beforehand what the performance of these products will be because quality has been controlled from start to finish at the refinery.

Constant checking of components and end products of petroleum enables Humble to meet exacting consumer requirements. Customers generally know little about Reid vapor pressure, flash point, gum content, and all the other tests necessary to assure product quality. It is Humble's job, as a refiner, to maintain and use an elaborate system of checking its products for quality.

At Baytown, about 200 employees of the Testing Section, the Assay and Analytical Section, and the laboratory at the Butyl Rubber Plant, RuR SR 43 which Humble operates under contract with the Federal Government, make more than 3000 tests a day. The samples being tested come from operating units whose combined production is more than 7½ million gallons a day. If any test shows that a stream of oil flowing through a particular unit is not exactly what it should be, operators are notified and corrective steps are taken.

Technician checks compression ratio on knock test engine used in determining octane number of aviation gasolines.

Octane rating determined by knock test is one of the most important measures of gasoline performance

Fuel with a low-octane number will "knock" in an automobile engine, causing a loss of power and possible damage to the pistons and bearings. Checking a gasoline for its octane number is a direct performance test.

Octane numbers are measurements of anti-knock quality in gasolines, just as miles are measurements of distance. They are based on mixtures of two pure hydrocarbons, *iso-octane* and *normal heptane*. Iso-octane, from which the word "octane" comes, has an octane number of 100 and is very high in anti-knock quality. Normal heptane has an octane number of zero, and knocks very readily.

The two pure hydrocarbons may be mixed together in any proportion, and the octane number of the mixture is decided by the relative amount of iso-octane it contains. For example, a mixture of 70 parts iso-octane and 30 parts normal heptane has an octane number of 70.

These mixtures of iso-octane and normal heptane are known as reference fuels and are burned in test engines to determine the octane number of an unknown gasoline. When a sample of unknown gasoline "knocks" in a test engine at the same point as a known blend of reference fuel, it is assigned the same octane number as the blend.

In actual practice, both iso-octane and normal heptane are far too expensive for everyday testing, so secondary reference fuels have been developed to serve the same purpose.

Employees engaged in testing and analytical work make more than 300 different kinds of tests. As petroleum refining is a continuous process, oil streams flow continuously, and samples of these streams move through the testing laboratories constantly.

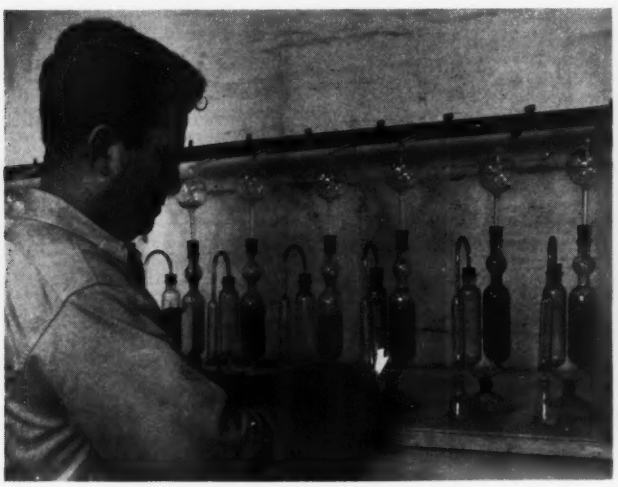
The Testing Section has four groups. Physical Testing Laboratory employees make tests to determine gravity or type of oil, flash point or temperature at which the oil vapors are inflammable, viscosity or resistance to flow, color, and boiling ranges or volatility (distillation) on all refinery products. The Light Oil Analytical Testing group conducts chemical tests on naphthas, kerosenes, and fuel oils to check them, among other things, for corrosive substances and sulfur content. A Heavy Oil Analytical Testing Laboratory makes similar tests on lubricating oils, heavy fuels, and asphalts. In the Knock Testing Laboratory, technicians use special engines to determine the anti-knock quality of motor and aviation gasolines as well as ignition quality of Diesel fuels.

The Assay and Analytical Section is composed of members of the Light Hydrocarbon and the Crude Assay Laboratories. Technicians in the former use infrared and ultraviolet spectrometers, mass spectrometer, and Podbielniak stills to analyze oil mixtures for pentanes and lighter components. Personnel of the Crude Assay Laboratory, aside from determining what products can be made from various crudes, regularly examine products from research groups to determine yield and quality of components.

The RuR SR 43 Laboratory performs all testing necessary for control of operations at the Butadiene Plant (RuR SR 10), and the Butyl Rubber Plant (RuR SR 43). In addition to testing materials which can also be analyzed in the Light Hydrocarbon Laboratory and some of the Testing Section laboratories, this group also conducts tests on Butyl rubber to assist in controlling operations and in classifying the finished Butyl rubber.

LABORATORY PERSONNEL MAKE AN IMPORTANT SERIES OF TESTS ON GASOLINES

Included are routine aspects of tests on distillation, top left; vapor pressure, top right; sulphur content, bottom left; gum content, bottom right; and octane number, opposite page. Gasolines are tested more than 100 times before finishing.



Operator records data from one of many instruments in Crude Assay Laboratory, where various types of crude oils are analyzed to determine product possibilities.

To keep samples moving, a truck driver from the Testing Section gathers oil samples from the operating units every two hours—and every hour at some units. Tests may be run more often. When, in laboratory language, units are not "on stream" —namely, are not meeting product specifications—tests may be run as often as every 15 minutes.

Samples are delivered to a receiving room in the laboratory where they are split into smaller samples and routed to each test station concerned.

Upon completion of tests, records are coordinated and checked by the supervisor. As soon as the results of all tests made on a sample are known and properly recorded, a clerk notifies by telephone the foreman of the operating unit from which the sample originated. Later, copies of the test results are mailed to the foreman and to interested departments. Samples are retained 24 hours for further checking if necessary. Approximately 600 control samples are handled in this manner every 24 hours, and in addition about half as many samples from research projects are processed.

Control testing means much more than running a few simple tests; no product is marketed until checked many times along the processing route. For instance, in the case of gasoline, as many as 100 tests are made between its origin as crude oil and the ready-for-market product.

Some of the important tests made on finished gasolines include sulphur content, distillation, vapor pressure, gum content, and octane number. Interpreted to the consumer, this means that gasoline checked and made to meet requirements of these tests will not contain harmful agents to clog or corrode parts of the fuel system of his automobile. Such gasoline will start and run an engine under reasonable variations of temperature, will help the engine to warm up quickly, and result in a fuel that will burn properly.

Checking a gasoline for its octane number is a direct performance test. Octane numbers are measurements of anti-knock quality of gasolines. Information obtained from knock testing has enabled engine designers to make, economically, high-speed automotive engines of today and refiners to adjust operations for manufacture of fuels designed for those engines.

Test procedures used are usually those evolved, after considerable study and investigation, by American Society for Testing Materials, whose membership consists of representatives of manufacturers, consumers, and others.

Individuals constantly checking the quality of all materials in process and of all finished products furnish data to operators of refining units for control of operations in such a manner as to result in the product meeting specifications. Further, the information obtained in this continuous testing assures the consumer that each Humble product is uniform in quality from day to day, and that each product will give the high performance expected of it.

Artist Mark Storm, who painted "Derrick Skidding" on Pages 14-15, was born in Alaska. Before coming to Houston 15 years ago he lived in California and Mexico, and spent some years on a New Mexico ranch. Outdoor scenes are his delight, especially if a horse seems appropriate in the picture.

Framing-size reproductions of paintings appearing in this issue are available. "Spudder in the Panhandle," a watercolor by Jerry Bywaters which appeared in the September-October issue, has also been reproduced for distribution. Requests for these reproductions should be made by title and should be addressed to The Editor, THE HUMBLE WAY, P. O. Box 2180, Houston, Texas.

Personnel Changes in Humble Pipe Line Company Announced

Nine executives of Humble Pipe Line Company, with a combined Company service of 238 years, were promoted to new positions on December 1. In a general re-assignment of duties, O. Q. Lomax, vice president and general superintendent, announced the following promotions:

A. E. Pecore was named general superintendent of Humble Pipe Line Company; F. D. McMahon, superintendent of the Company's West Texas Division with headquarters at Midland; Jack Jones, superintendent of field operations for the Company; H. M. Stevenson, manager of planning and economics; C. H. Lundt, chief engineer; P. D. Phillips, Jr., assistant chief engineer; C. C. Moore, co-ordinator of personnel and policy; L. E. Grissom, secretary and superintendent of oil movements; and E. L. Krueger, assistant secretary and assistant treasurer.

Pecore

Mr. Pecore started with the Company as a draftsman in the Houston Office Civil Engineering Division in 1919 and became chief draftsman five years later. After serving as assistant civil engineer and assistant chief engineer, he has been chief engineer since 1945.

Thirty Years With Company

Mr. McMahon, with the Company for 30 years, started as connection foreman at Fambrough. He advanced to become North Texas Division Superintendent, later was East Texas Division Superintendent, and since June, 1942, has been assistant general superintendent (field operations) of Humble Pipe Line Company.

Mr. Jones began as a mechanic in the Houston Office in 1928. After seven years at Cisco where he became senior mechanical engineer, he returned to Houston in the same capacity. He later was district superintendent at Pampa and at Odessa, and has been assistant division superintendent at Midland since 1941.

Mr. Stevenson has been with the Company since 1920, when he started as a mechanical draftsman in the Engineering Department. Since that time he has been mechanical engineer, chief engineer, and assistant general superintendent (engineering and development). He has been loaned to other companies several times to supervise major pipe line construction jobs.

Mr. Lundt has been with the Company for 26 years. He went to work at Cisco in the Engineering Department in 1924, and transferred to Houston two years later to become successively draftsman, chief draftsman, mechanical engineer, and assistant chief engineer.

Started as Pipeliner

Mr. Phillips started as a pipeliner at Longview in 1934. He later worked at the East Texas Division engineering office, at McCamey, and at Midland in engineering capacities. After Army service he was transferred to Houston where he served as mechanical engineer, senior mechanical engineer and supervising mechanical engineer.

Mr. Moore's career began at Cisco in 1920. He became assistant secretary of the Company in 1928, and also served as assistant to the treasurer. In 1942 he became personnel coordinator, retaining his duties as assistant secretary. He will now devote full time to coordinating personnel and policy.

Mr. Grissom, in 30 years with the Company, has been head of the Fort Worth Telephone and Telegraph Department, Houston Office dispatcher, assistant to the president, chief dispatcher, board of directors member, and secretary and assistant treasurer and at the same time carrying on the work of supervising oil movements.

Mr. Krueger joined the Houston Office Accounting Department (payroll section) in 1923. He worked up through the positions of stenographer and private payroll clerk to become assistant to the treasurer in 1946.

McMahon

Jones

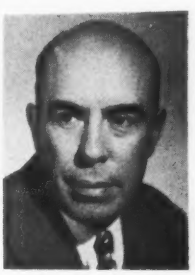
Lundt

Stevenson

Grissom

Phillips

Moore



Krueger

Barges loaded with petroleum products at Humble's Baytown Refinery travel through the Intracoastal Canal to terminals at Corpus Christi and Brownsville.

Map displayed at the opening of the Valley Products Terminal shows route of barges from Baytown to the tip of Texas, where the new terminal is located.

MORE THAN 700 civic and business representatives of all communities in the Rio Grande Valley of Texas gathered at the Port of Brownsville on December 6 to join with Humble people in formally opening the Company's Valley Products Terminal. This is a new plant for receiving and distributing Humble products in that area and the second such Humble terminal on the Intracoastal Canal.

Humble had begun construction on the terminal early in the year. Its completion and opening followed close behind the opening of the last leg of the Intracoastal Canal, which extended low-cost barge transportation to the very tip of Texas and opened a water avenue between Humble's Baytown Refinery and the Valley.

The 700 guests at the terminal's opening came from points as distant as Rio Grande City, 110 miles to the west, and Raymondville, 50 miles to the north—the outside limits of the area served by transport trucks from the new plant. The program began at 4:30 and was broadcast over a Valley radio network. Speaking on the program were Herbert C. Dennett, Humble's Southwest Texas Division Sales Manager; H. L. Stokely, Mayor of Brownsville; G. E. Dodd, chairman of the Brownsville Navigation District;

Opening ceremonies for Humble's new Valley Products Terminal at the Port of Brownsville were attended by more than 700 representatives of all Valley towns.

Frank A. Watts, Humble Sales Manager; Lewis O. Vogelsang, vice president of the Valley Chamber of Commerce; and Morgan J. Davis, Humble director in charge of exploration. Several of the speakers emphasized the importance to the Valley of water transportation, which made the terminal possible. Water transportation is also important to industry, especially to the oil refining industry.

It was no accident that Humble's Baytown Refinery was located at tidewater; high-quality products can be produced at low cost in large plants, and large plants must have economical transportation available. So Baytown was located on the Houston ship channel to utilize water transportation to the high-consumption areas on the East Coast. Now, with the completion of the canal to Brownsville, the refinery also has a water link with the entire coastal area of the state of Texas.

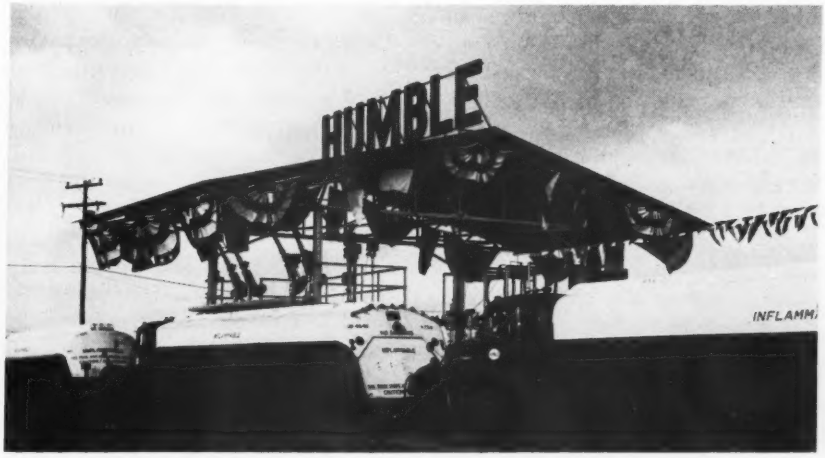
After the war, due to research that had been proceeding for many years, Baytown Refinery stood in a position of leadership, but the increasing demand for its post-war products brought with it transportation problems.

To solve these problems for inland areas, Humble Pipe Line Company built a products pipe line; for coastal areas, the Intracoastal Canal presented the logical solution. Both are economical means of transportation.

Products terminal facilities were secured on the canal at Corpus Christi, and the first barge load of gasoline and other products from Baytown Refinery was unloaded there on December 31, 1945. Transport trucks immediately began distributing products from the terminal to wholesale and retail outlets in the surrounding area.

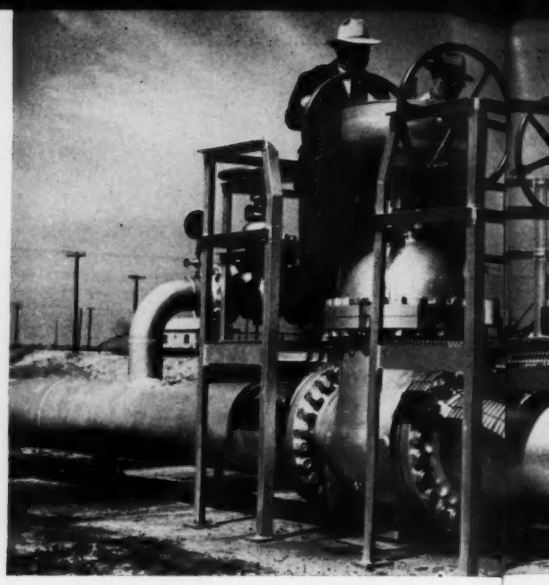
At that time the canal was not completed below Corpus Christi, but when construction progressed to a point that completion was in sight, the Humble Company began building its Valley Products Terminal at the Port of Brownsville. Since its opening on December 6, this terminal has been serving as a central distribution point from which transport trucks supply the entire Valley.

Thus in four years the Humble Company has expanded its water transportation system to serve about one-twelfth of the state's total area.



Loaded transport trucks stood by for inspection during the ceremonies, then rolled away to supply points throughout the Valley at the close of the program.

Tank trucks are the final link in a supply chain between oil well and consumer. Loaded with gasoline or fuel oil, trucks are familiar sights in every community.



Present-day pipe lines and techniques are a vast improvement over those

PROGRESS IN OIL

Under the spur of competition, the oil industry has developed an efficient system of moving petroleum. The system serves everyone well—producers, refiners, and consumers.

FORTUNATELY for millions of Americans, the petroleum industry has developed its own efficient method of moving crude oil, gas, and finished products from one place to another. The greatest bulk is moved by *pipe lines* and *sea-going tankers,* but the highly-developed system depends also upon *barges* for shipping on rivers and in protected waters and upon *motor trucks* for inland hauls. Railroad *tank cars* continue to be used chiefly for carrying products to areas not yet served by products pipe lines and inaccessible by water.

One word explains why the oil industry has been able to build such an amazing transportation system. That word is *competition.* Each company has tried to reduce its operating costs, and transportation is a considerable item of operating costs. But there are other reasons, too, and all of them stem from competition among companies and operators. The producer's need for crude oil customers, plus the refiner's need for (1) an assured, adequate, continuous supply of oil and (2) new customers and marketing areas have combined to bring about the present transportation system that carries oil so efficiently. It has been a spirited race since oil was first discovered, and it is still in progress.

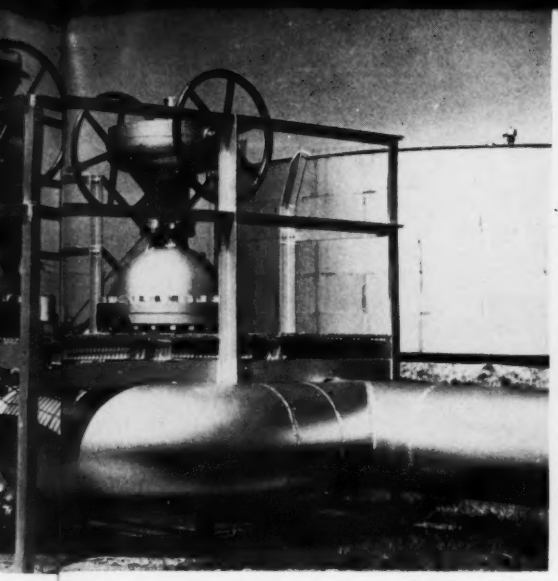
Pipe lines or fleets of tankers, or both, assure refiners of a steady supply of crude oil. Products pipe lines have been built inland from coastal refineries, so that those plants can compete with others located nearer oil producing areas. Without such lines, the higher cost of transporting gasoline by motor truck or railroad tank car would place the coastal refiner at a marketing disadvantage inland, even though he could use cheap water transportation to move his products in coastwise trade.

Early competition among the various forms of transportation was vigorous to the point of being vicious. The first hauling jobs fell to teamsters, energetic and resourceful fellows who, with little regard for such niceties as eminent domain and landowners' permissions, took their wagons over the easiest route to market.

Soon after the rush of 1859, oilmen began to use water transportation. They floated barrels filled with oil down Oil Creek, and steamers made the trip from Pittsburgh up the Alleghany River to the mouth of the creek. Barrels of oil were sometimes stored against man-made dams and held there until spring floods could carry them down the creek. This haphazard method broke a great many barrels and lost a lot of oil.

By 1863, a railroad had reached as far as Titusville, near the Drake discovery well. At first, oil was carried in ordinary barrels by rail. By 1865, however, large wooden tanks were already making their appearance on flatcars, and the first metal tank car appeared in 1869. By now, the railroads were giving river transportation some stiff competition for oil traffic.

But all three early methods—wagon, river, and railroad—were too slow and too expensive. A better way had to be found to transport oil in bulk lots, and the young industry was already working on the problem. In 1862 approximately 1000 feet of small diameter pipe line was laid over a hill from a producing well to a refinery, oil being moved through the line by the siphon principle. The next year, a second line was laid from producing wells to a railroad siding, but it developed leaks and was unsatisfactory.



of earlier years. Today, large all-welded lines carry the bulk of the nation's oil.

Sovac Astral, new super-tanker, can carry 230,000 barrels of gasoline in one cargo between Baytown and New York. Railroad cars wait turn at loading racks.

TRANSPORTATION

In 1865, five miles of two-inch pipe line was built from Pithole, Pennsylvania to Miller's Farm. The line carried about 80 barrels of oil an hour, and teamsters were enraged. They cut the line, tore up parts of it, and created such a disturbance that men with rifles had to be stationed along the line.

Other lines built about the same time were similarly opposed by teamsters, who burned tanks of oil, fought pipe line employees, and brought on such disorder that government troops were finally called to restore peace. Cutting and plugging of lines went on under cover for years, but the teamsters were doomed to failure. They had been charging from $3.00 to $5.00 a barrel for hauling oil. Early in the struggle, the pipe lines set a rate of $1.25 per barrel.

The first trunk line to carry oil from producing regions direct to refineries was built in 1874 in Pennsylvania. Now the railroads were alarmed, and with good reason. Having won their earlier fight with river transportation as a means of moving oil, the rails were now faced with a much more formidable competitor—the pipe line. Before 1874, pipe lines had been used only to carry oil from wells to rail shipping points.

By 1880, over 1200 miles of pipe lines were serving the producing fields of Pennsylvania, New York, Ohio, and West Virginia. Other lines reached westward when oil fields were discovered in Indiana, Illinois, Kansas, and Oklahoma. By 1900, about 18,000 miles of pipe lines were in operation in this country. Today, there are more than 140,000 miles of oil lines and about 240,000 miles of gas lines in the U. S. . . . and more miles of both types of line are being laid.

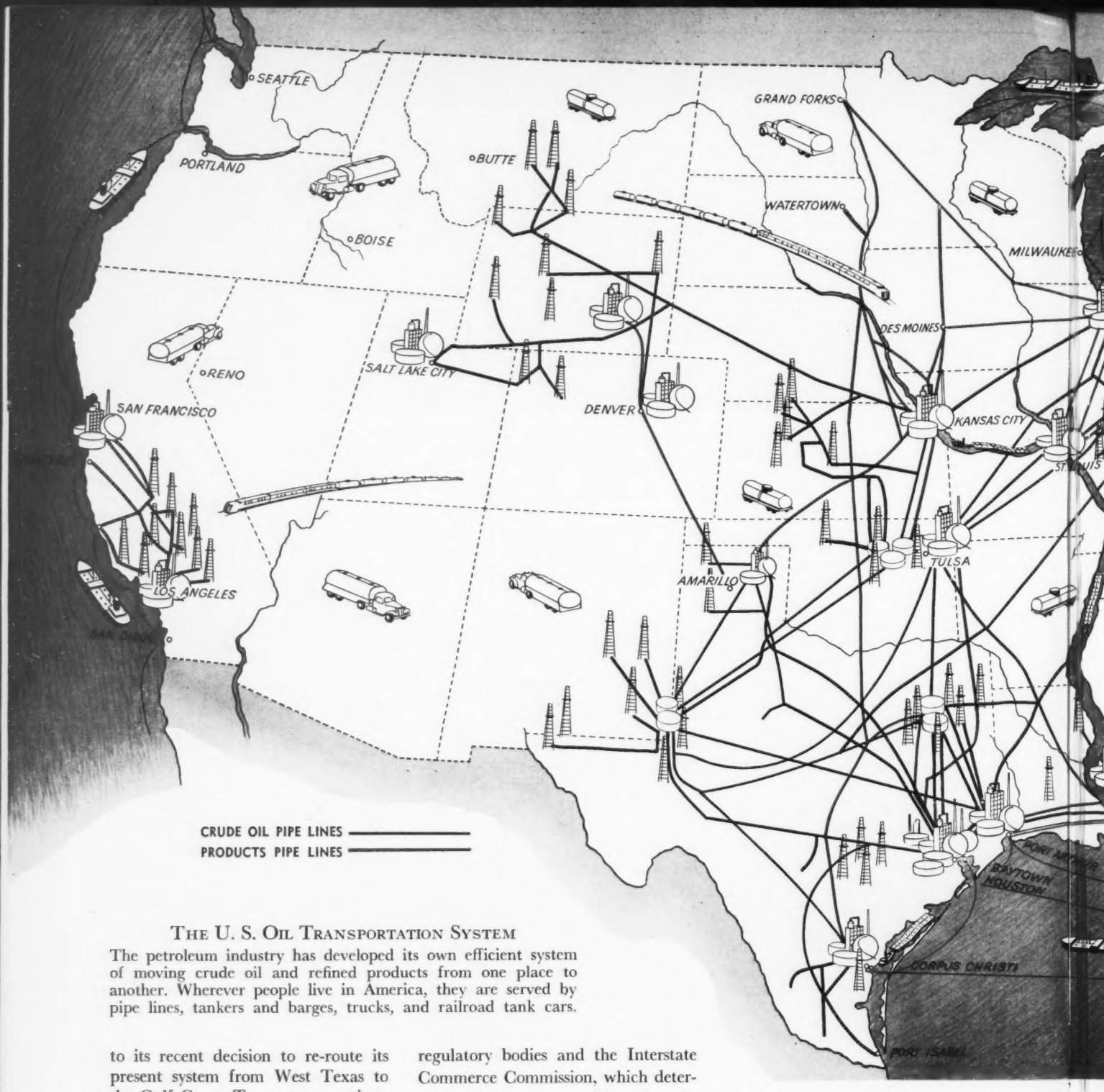
Present-day pipe lines and pipelining techniques are a vast improvement over those of the late 1800's—even over those of a few decades ago. Pipe line companies have found ways to move oil longer distances in a more efficient manner. They have, in fact, been practically forced to increase efficiency, to reduce costs and meet competition.

There is more automatic equipment today, and less hand work. Remote-reading tank gauges in many places make it unnecessary for a gauger to go out and take hourly readings on each tank. There are better ways of digging trenches, doping and wrapping pipe, and protecting it against corrosion. This speeds the work and reduces construction and maintenance costs.

All-welded lines have virtually replaced screw-in and coupled pipe. Pumps are larger and they operate at higher speeds. The pipe itself is much larger, so it can carry more oil. A few decades ago, an eight-inch line was a big one; today, pipe lines range up to 32 inches in diameter—and larger.

Ingenuity and advancements in pipelining technology were of great help to the Allies during World War II, when PLUTO (Pipe Line Under the Ocean) was laid from England to the coast of France after the invasion. Gasoline flowing through this line was relayed through specially-built, top-of-the-ground lines that kept up with invasion vehicles as they swept through France. Without PLUTO and its flexible "fingers," the invasion would have gone forward at a much slower rate. In war, as in peace, pipe lines aid the cause of freedom.

One thing remains unchanged in the pipe line business, and that is the constant pressure of competition. Competition continues—as it always will—to influence how much line shall be laid, what route the line shall follow, and what areas shall be served. It is competition, in fact, that has brought Humble Pipe Line Company



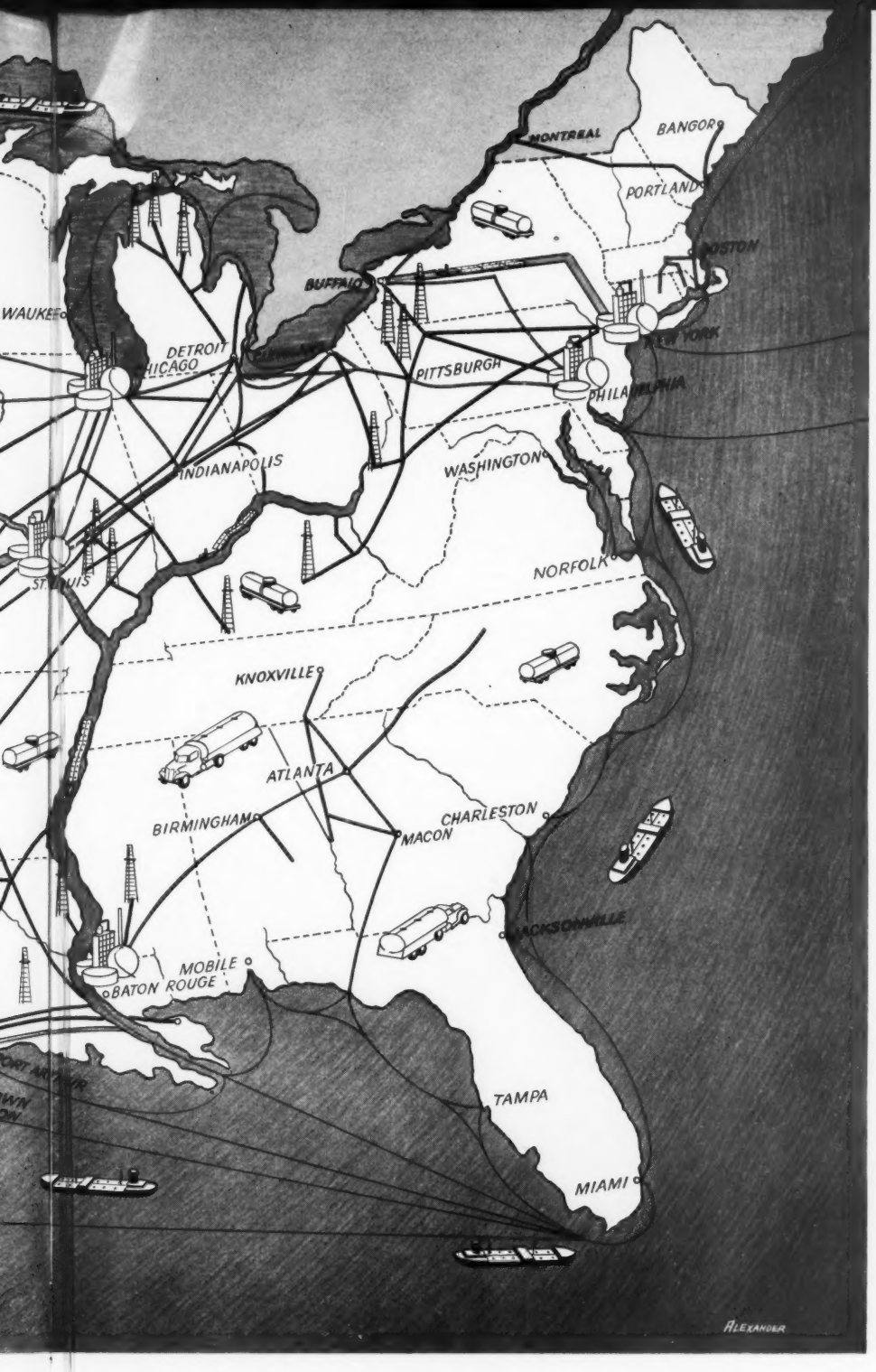
THE U. S. OIL TRANSPORTATION SYSTEM

The petroleum industry has developed its own efficient system of moving crude oil and refined products from one place to another. Wherever people live in America, they are served by pipe lines, tankers and barges, trucks, and railroad tank cars.

to its recent decision to re-route its present system from West Texas to the Gulf Coast. To meet competitors now serving the same area, Humble will soon start construction on a new 18-inch line from Kemper direct to the Coast. The new line will cut about 52 miles off the old route, and will reduce Humble's per-barrel costs of transporting the oil.

It should be pointed out, here, that pipe lines are common carriers, with rates subject to regulation by the state regulatory bodies and the Interstate Commerce Commission, which determine whether rates are fair and equitable. Besides their service to the public in assuring refineries adequate supplies of crude oil, pipe lines—like any business organization—are guided by the need for earning enough money to stay in business. It is up to each carrier to conduct its operations in such manner that a profit *can* be made—and these are the reasons why Humble is re-routing its West Texas-Gulf Coast line. The new line will have the advantages of a shorter route, greater capacity, and fewer pump stations.

Pipe lines serve the interests of everyone: producer, refiner, and consumer. When a new field is discovered, the producers' first step is to obtain a pipe line connection. Often the line



nearest the field will be extended to the new discovery. Such, however, is not always the case, and frequently competitive lines enter the field as it is developed. In practically all of the major oil-producing areas, producers have the choice of a number of competing carriers and purchasers. The simple fact is, refiners must have a regular and assured supply of crude oil. Pipe lines extending from producing areas to refineries provide a ready crude oil market for producers.

The producer, for his part, is free to sell his oil to whomever he chooses. Should any purchaser in the field post a higher price than the price the producer is currently receiving, he may—and does—switch to the pipe line serving the purchaser offering the highest price. This practice usually results in the original purchaser meeting the competitor's price, if conditions permit and if the price rise accurately reflects true market forces.

Present crude oil pipe lines were built because someone needed oil. Producers have benefited from this competitive race for their supplies—a race in which refiners have, in effect, brought their own markets to points of production.

As far as the consumer is concerned, pipe lines have meant lower prices for products. It is conservatively estimated that *today a barrel of oil can be moved 1500 miles by pipe line for about half as much as it cost to move it only five miles through the first pipe line!*

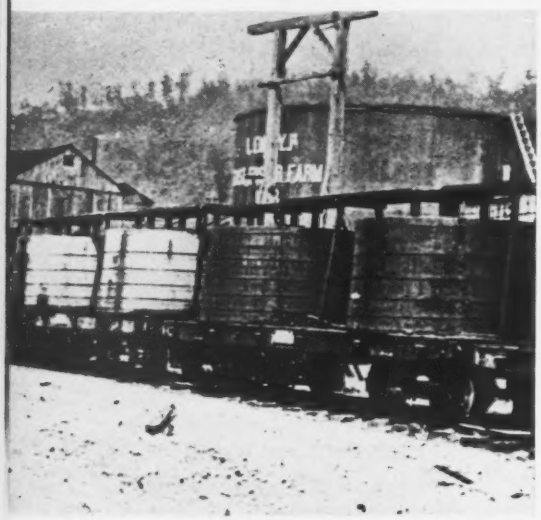
A great many changes and improvements have been made in transporting oil by water since the days when oil was floated in barrels down Oil Creek. As early as 1869, European countries, needing kerosene produced in the United States, began to equip their cargo vessels with compartments to hold oil. In the early 1880's, many cargo vessels designed especially to carry oil and its products were plying the seven seas. American tankers were being turned out in large numbers by this time, and the oil industry was using its own ships to carry crude oil to refineries and products from refineries to markets.

The first tankers were smaller than the seagoing giants of today, of course, and could carry only a fraction of today's cargo. The new super-tankers now in operation and under construction can carry up to 230,000 barrels of oil on a single voyage.

At the end of World War II, there were almost three times as many tankers in service as there were at the beginning of the conflict, and the total capacity of the American tanker fleet had been increased about three and one-half times. This in spite of losses due to submarine warfare!

Along with ocean transportation, the movement of oil through inland waterways by barge and lake tanker helps keep supply in balance with demand. In many areas of the United

Oil Creek in the 1860's . . .



. . . First railroad tank cars . . .

. . . Lines were laid by hand.

States, notably along the Mississippi River and in the Great Lakes region, inland water transportation of oil is heavy and helps reduce the length of hauls by rail and motor trucks.

Although the railroads normally haul little crude oil, they are sometimes called upon to do so in time of emergency. A case in point was the temporary condition of "spot shortages" of heating oil in certain parts of the United States during the unusually cold winter of 1946-47. At that time, railroad tank cars by the hundreds were pressed into service to haul crude oil from West Texas to East Texas, where it was relayed to the Gulf Coast by pipe line.

Practically all the petroleum normally moved by railroad tank car is in the form of products. The long strings of tank cars that connect refining centers with the nation's markets are filled with gasoline, kerosene, lubricating oils, heating oils, and other finished materials.

Like other forms of petroleum transportation, the modern railroad tank car is a great improvement over the crude wooden vats mounted on flatcars 70 or 80 years ago. Today's tank car takes not one, but many, engineering forms—even though all tank cars may look alike to the unpracticed eye. Those that carry volatile products are equipped with safety valves and other appliances for safety and convenience of loading and unloading. Cars that carry heavy products, such as tar, asphalt, and wax are equipped with steam-heating devices. Some are covered with insulation and steam jackets, to keep the products hot and fluid.

Virtually the same principles of engineering and science that have improved the tank car and made it safer have been applied to the smaller and more mobile tank truck. Trucks of this type, loaded with gasoline or fuel oil, are a familiar sight in every community. They are the last link between the oil well and the gasoline tank of the customer's car or the heating oil tank in the basement of his home.

Pipe lines and pumping equipment especially designed to handle products are becoming more and more a competitor of other forms of products transportation on land. It is logical that this should be so. With the demand for refined products increasing, and with competition for markets becoming keener, each refiner is seeking to develop and hold the widest possible distribution for his products.

Relatively high and somewhat rigid railroad freight rates have made it necessary for the refiner to seek relief through lowered transportation costs, and the best way to do that is by means of a products pipe line, which reduces costs and enables the refiner to market his products competitively with others in practically any area of his choosing.

Under the force of competition, products pipe lines have grown in capacity and extent during the past 15 or 20 years. The same force is in effect today, and the trend may reasonably be expected to continue.

The oil industry has developed and is constantly improving methods of moving crude oil from wells to refineries, and products from refineries to points of consumption. It is a system designed to do a specific job with a specific material—petroleum.

Oil transportation as it is today has been developed under vigorous competition, and this competition has been responsible, more than any other one thing, for the low-cost, efficient system through which oil moves thousands of miles from well to consumer. It is a system which benefits everyone: it assures the producer a ready market for his oil, insures a steady supply of raw material for refiners, and makes possible a constant flow of products at reasonable prices for consumers.

Early Oil Transportation Methods

Early oil transportation was slow, expensive, and wasteful. Oil was first hauled in barrels by teamsters and floated in barrels down Oil Creek in Pennsylvania. The first tank car was nothing but a wooden vat on a flatcar. Enraged teamsters tore up the first pipe lines.

The trend today is toward building bigger and better tankers to move oil in coastwise trade. Tankers have been described as "water pipe lines" connecting markets and sources of supply.

rade.
pply.

DERRICK SKIDDING

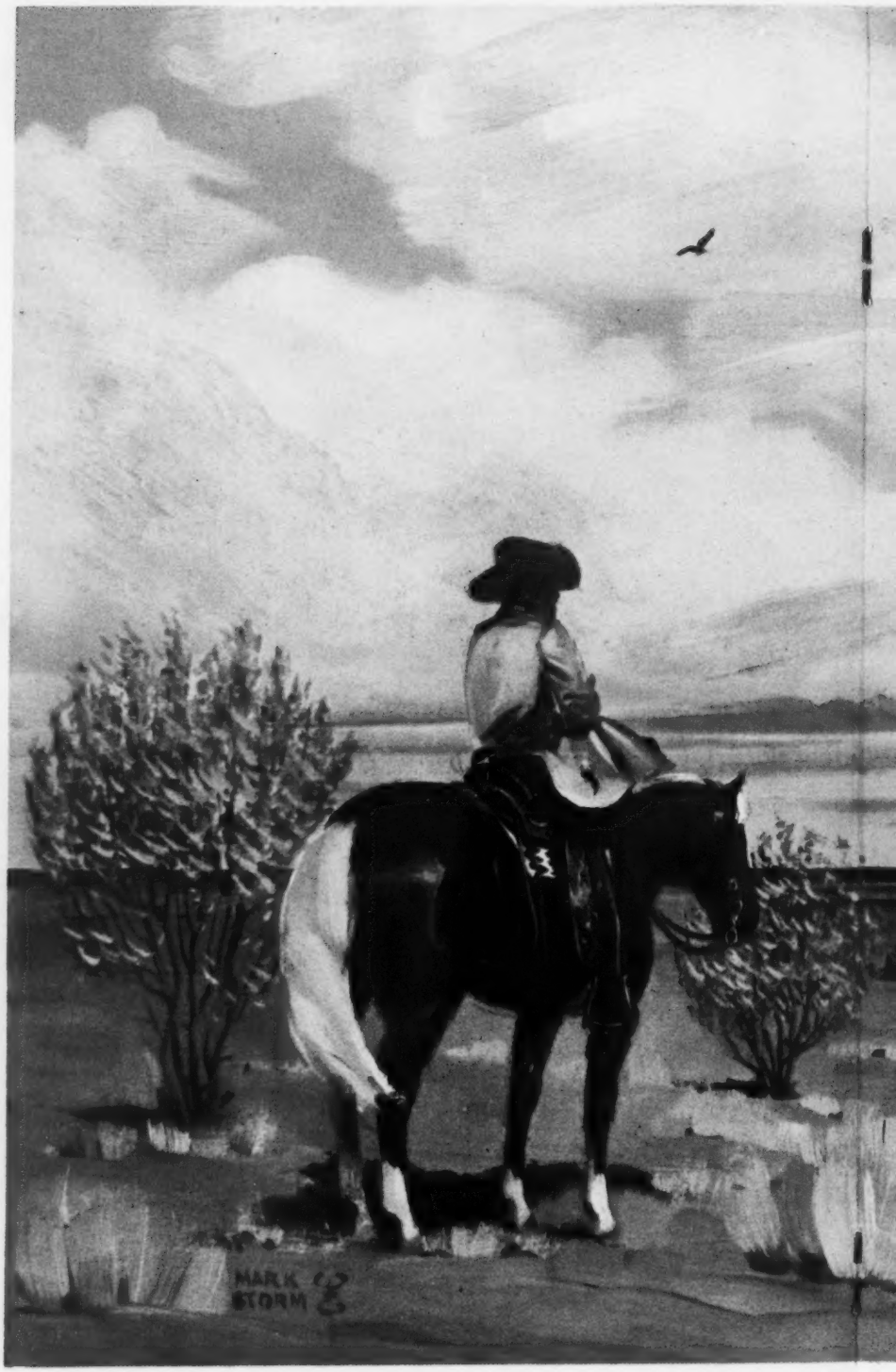
A tall heavy derrick moving slowly across the Southwest Texas prairie inspired artist Mark Storm to recreate the scene in the oil painting reproduced here. In his study he painted with the apparent calm meditation of the cowpuncher on his horse contemplating the ease with which a tower of steel can be skidded across the range.

IN FLAT dry country, particularly in West and Southwest Texas, derricks are skidded sometimes several miles between locations. The derrick and substructure, towering nearly 160 feet, are jacked up onto rollers and pulled along plank paths by one or more trucks or tractors. The technique varies with the operator as each strives to move as quickly as possible; some attach caterpillar treads to the four corners of the derrick and eliminate the plank paths.

To save time in moving, many operators use two derricks with each rig in order that the derrick is built and ready when the rig is moved in to a new location. Obviously, skidding removes the need for the second derrick and also saves considerable time in rigging up. Whether the derrick is skidded or not, the rig (generally regarded as all of the machinery—draw-works and engine, mud pumps, etc.) is trucked to the new location to be available when needed in rigging up.

FOR ANOTHER METHOD OF MOVING A DERRICK—*turn to page 17.*

Skidding large derricks—a product of oil field ingenuity—is typical of the progress in drilling techniques and machinery. Up until about 25 years ago almost all derricks were of wood, and were left over those wells which were producers. This was done for a number of reasons, mainly because wells were then flowed wide open and oil reservoir pressure was soon dissipated. To keep wells in production, operators soon had to install pumping equipment and consequently left the derricks standing to facilitate servicing the pumps.



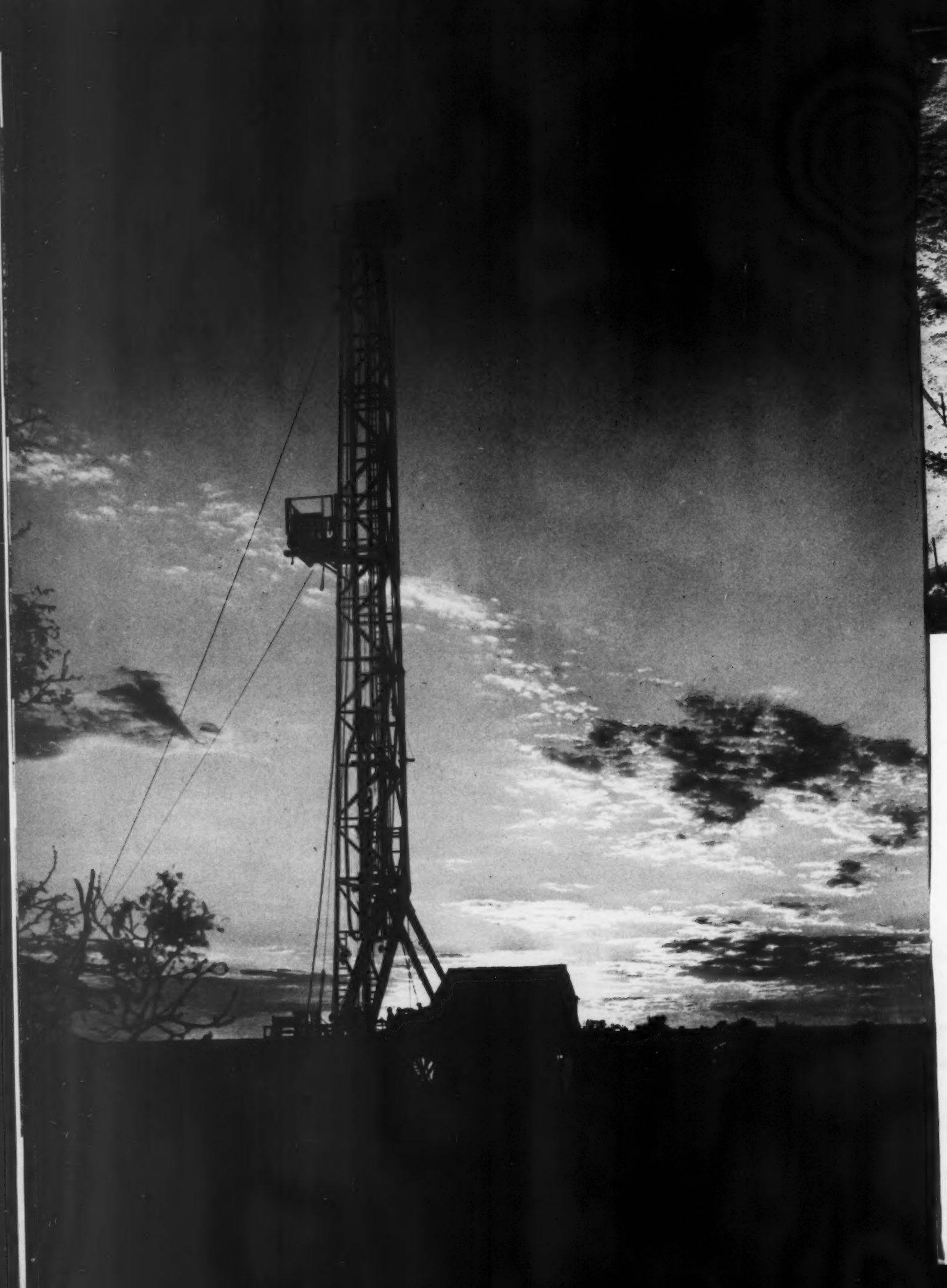
Derrick Skidding

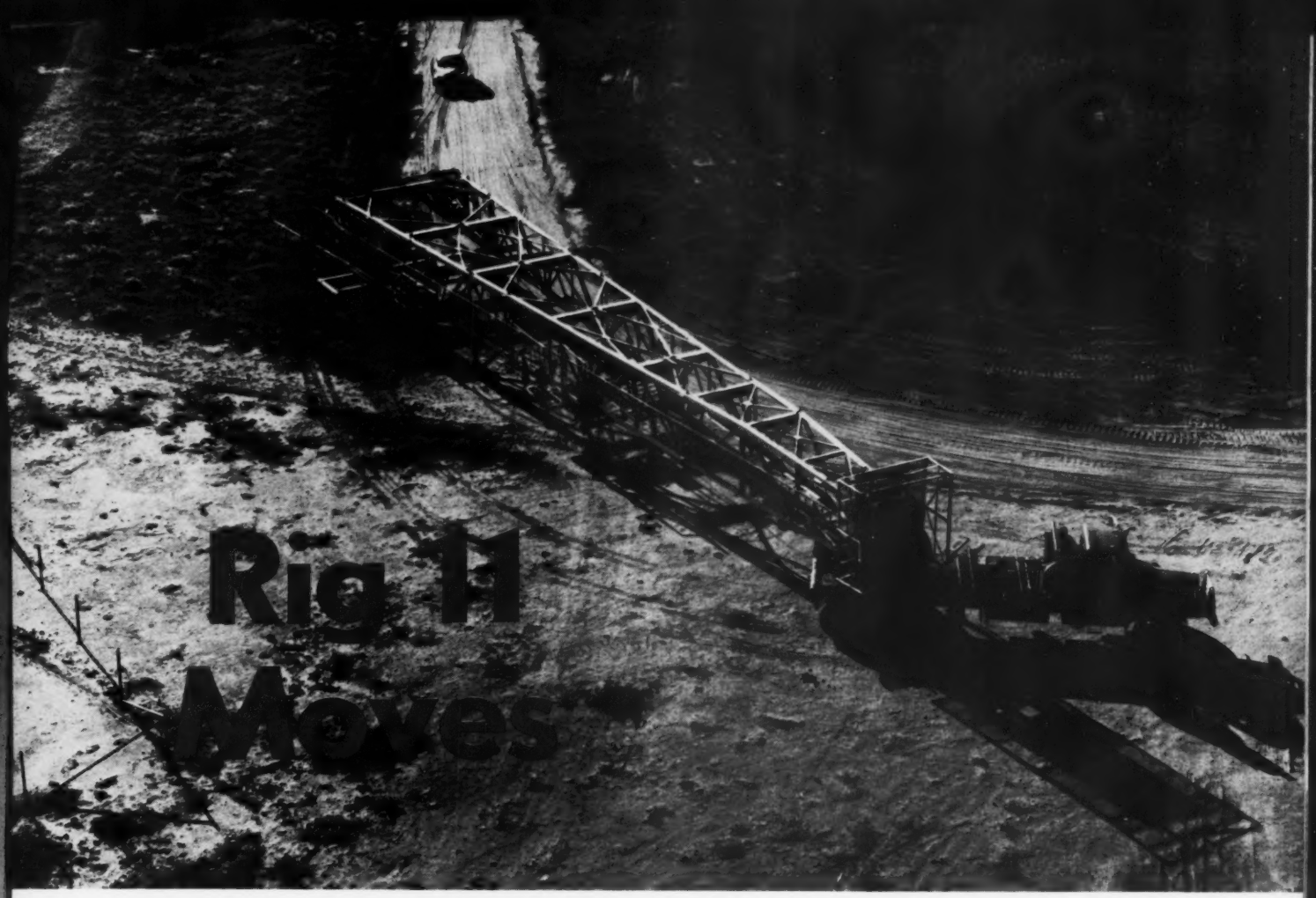
Mark Storm

The derricks were either dismantled or skidded away from dry holes.

During the 20's, bolted steel derricks came into use as oil field equipment became standardized and conservation practices were put into operation. Flowing wells then had a longer flowing life and pumping was often delayed for years.

The bolted steel derrick greatly reduced the fire and high wind hazards, and could be used for drilling many more wells. Thus when the drilling derrick was not needed as a production derrick, and when moves were more frequent, the portable or movable steel derrick became more practical.





Rig 11 Moves

Twenty-ton tandem truck swings wide around curve to clear 136-foot drilling mast en route to new location. Rear end of 30-ton mast rides on two 56-inch bomber tires.

Moves are frequent for rig drilling field wells in Southwest Texas area

A DRILLING rig has no home. It remains in one spot only long enough to drill and complete a well before moving on to the next. The time varies from a few days to a year or more, depending upon the depth and difficulties encountered.

On November 16, the crew of Humble's Rig 11 began their fourteenth move since acquiring a portable drilling mast last May. With the Company's only "jackknife" derrick, the crew has been drilling wells in the 15-mile-long area encompassing the Charlotte and Jourdanton fields of Atascosa County, 45 miles south of San Antonio.

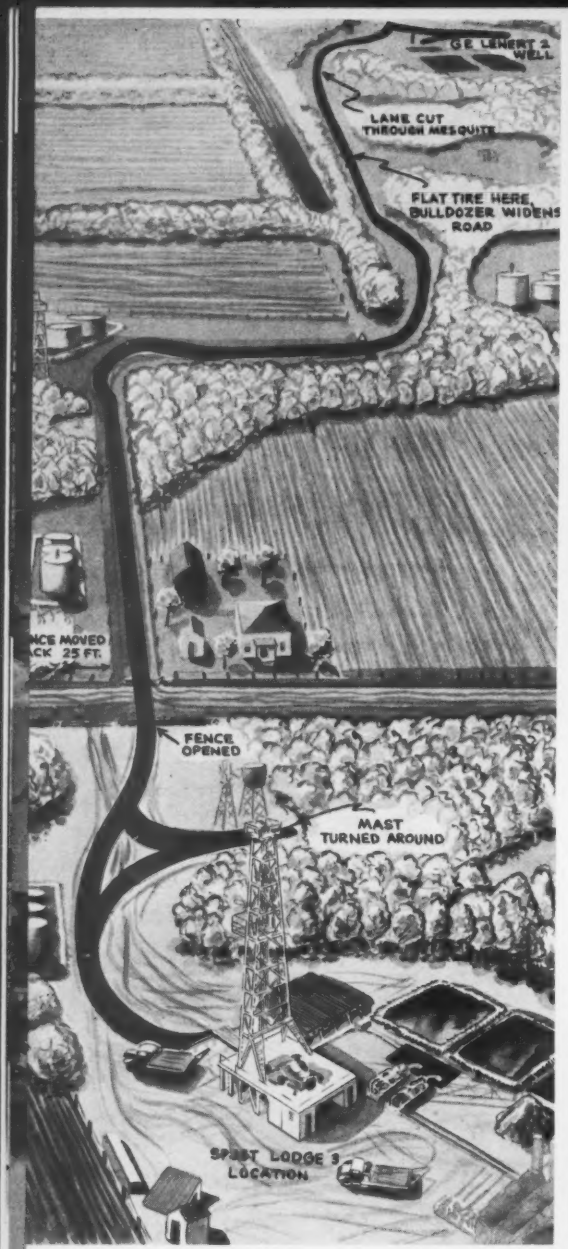
Among the reasons for Rig 11's frequent moves is the speed and efficiency the crew acquired in drilling and completing field wells. In the Charlotte field, they completed a well in the Navarro sand (5,200 feet) in about 10 days, and in the Jourdanton field they finished a well in the Edwards limestone (7,400 feet) in 30 days. Drilling field wells fairly close together has sharpened the skill of the crew and kept the average length of a move to about one and a half miles.

Moving Time Ten Per Cent

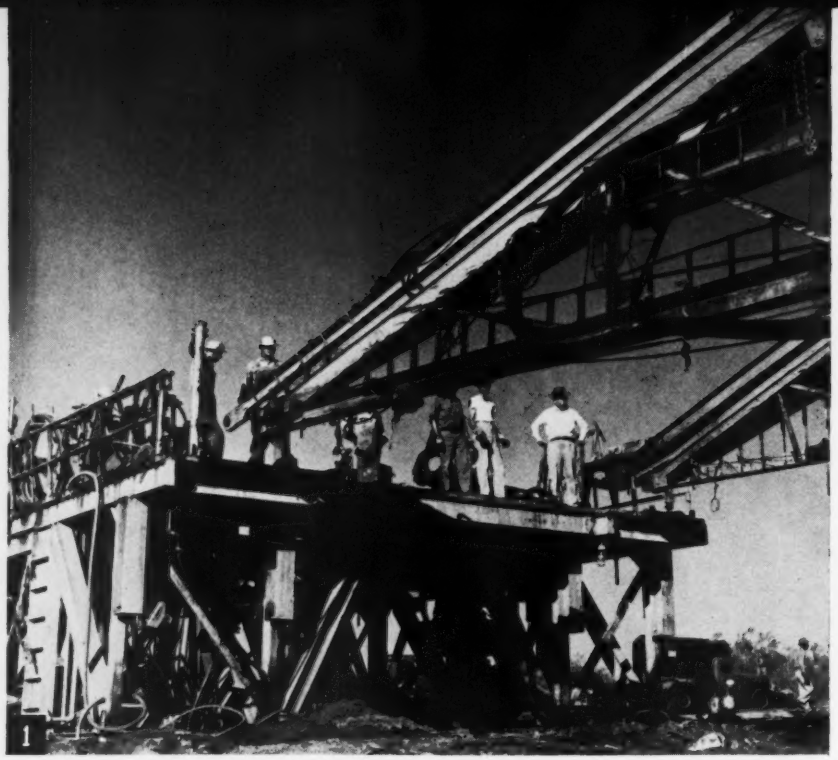
Considering the averages on more than 800 wells drilled by Humble in 1949, Rig 11 moves oftener than most rigs. The "average" Humble well requires about 47 days to drill and complete, of which four and a half days or nearly 10 per cent of the time is spent moving and rigging up. The average depth of all wells is about 6,450 feet. These averages, of course, include fast field wells like those drilled by Rig 11 and remote and difficult wildcats. Also included are more than 100 wells drilled below 10,000 feet and the offshore and barge operations.

Preliminary work for Rig 11's fourteenth move began in late October. The route was checked and preparation of the new location was started by the Imogene District civil engineer. He surveyed the well site in a mesquite pasture and directed the clearing of the location and the digging of the mud and slush pits and the cellar. The rig layout was staked out and the der-

Rig 11, with Company's only cantilever derrick, is silhouetted by the setting sun in the Jourdanton field, Atascosa County.


GR. LENERT 2 WELL
LANE CUT THROUGH MESQUITE
FLAT TIRE HERE, BULLDOZER WIDENS ROAD
NCE MOVED CK 25 FT.
FENCE OPENED
MAST TURNED AROUND
SPOT LODGE 3 LOCATION

Color line on sketch shows the two and a half-mile route over which trucks shuttled back and forth hauling rig and nearly 8,000 feet of drill pipe to new location. Note oil storage tank batteries.



Rig 11 crew under tool pusher L. F. Smith (soft hat), after unpinning derrick legs, watches as the cantilever mast is pulled away from substructure over Lenert 2 well.

Seven heavy trucks and bull-

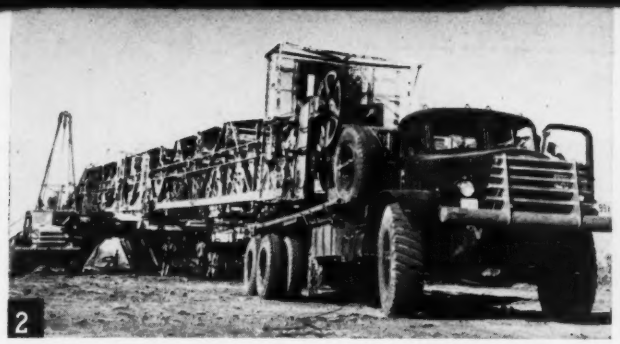
Bulldozer, two tandem trucks pull 50-ton substructure from old location. The two substructure sections are then towed to new location on special airplane-tired dollies.

rick substructure site was carefully levelled.

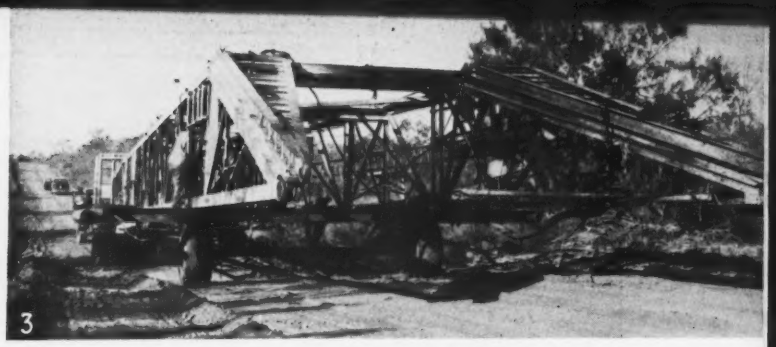
The civil engineer gave attention to the route between locations, also. For the two and a half miles on this move (see map), a lane was bulldozed through nearly half a mile of mesquite, and the other two miles of narrow country road were widened to permit the 40-foot width of the drilling mast dolly to pass. One section of barbed-wire fence along the lane was temporarily set back 25 feet, and men were designated to turn back two fences and two cattle-guards when the rig came through.

Seven heavy trucks and a bulldozer were needed to move the rig. Three large 20-ton tandem trucks hauled the heavier units—the three 16-ton boilers, the 17-ton mud pumps, the drawworks and engine weighing 25 tons. The drilling mast (weight 30 tons) and the substructure (two 25-ton sections) were towed on airplane-tired dollies by the tandem trucks.

Some of Rig 11's moves have been made in one day where the mast and substructure could be pulled upright across flat prairie. The 232,000-pound load was skidded on the steel plate bottom of the substructure. This move, across more rugged terrain, took two days from the start of tearing down the rig until drilling began on the new location. Included in this time are delays caused by a broken fuel line on a big tandem truck and a flat tire on the mast dolly.



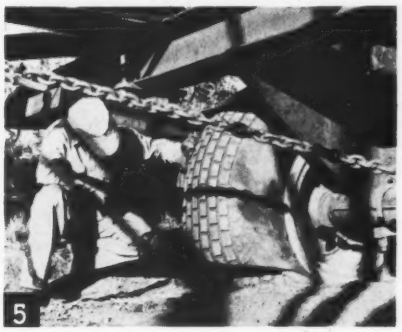
Three trucks, one in front and two in rear, lift 30-ton mast from substructure. Note well head silhouetted below the mast.



Road was widened 15 feet to accommodate 20-foot tread of airplane tires, 40-foot dolly width. Mast is moved in one section.

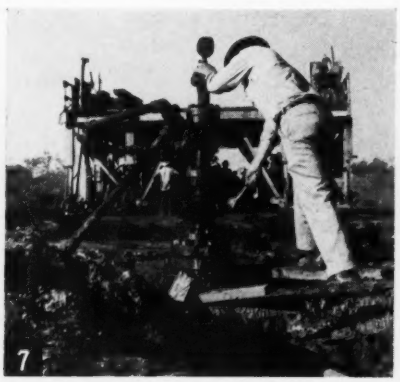
Truck driver high in seat of tandem keeps sharp eye on mast trailing behind.

Development of extra-heavy trucks and tractors has made it possible to move rigs in a few large sections, saving time and effort of crews.



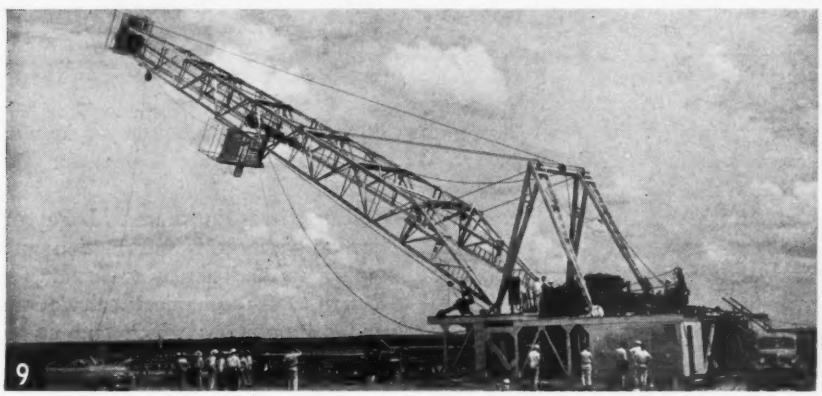
Blowout of airplane tire caused delay; bypass road was bulldozed around mast.

dozers move Rig 11 for fourteenth time in six months

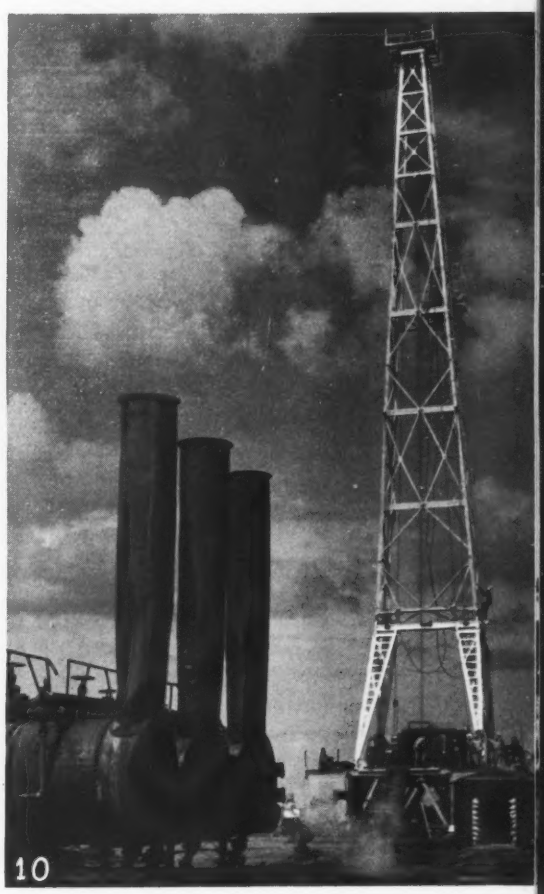


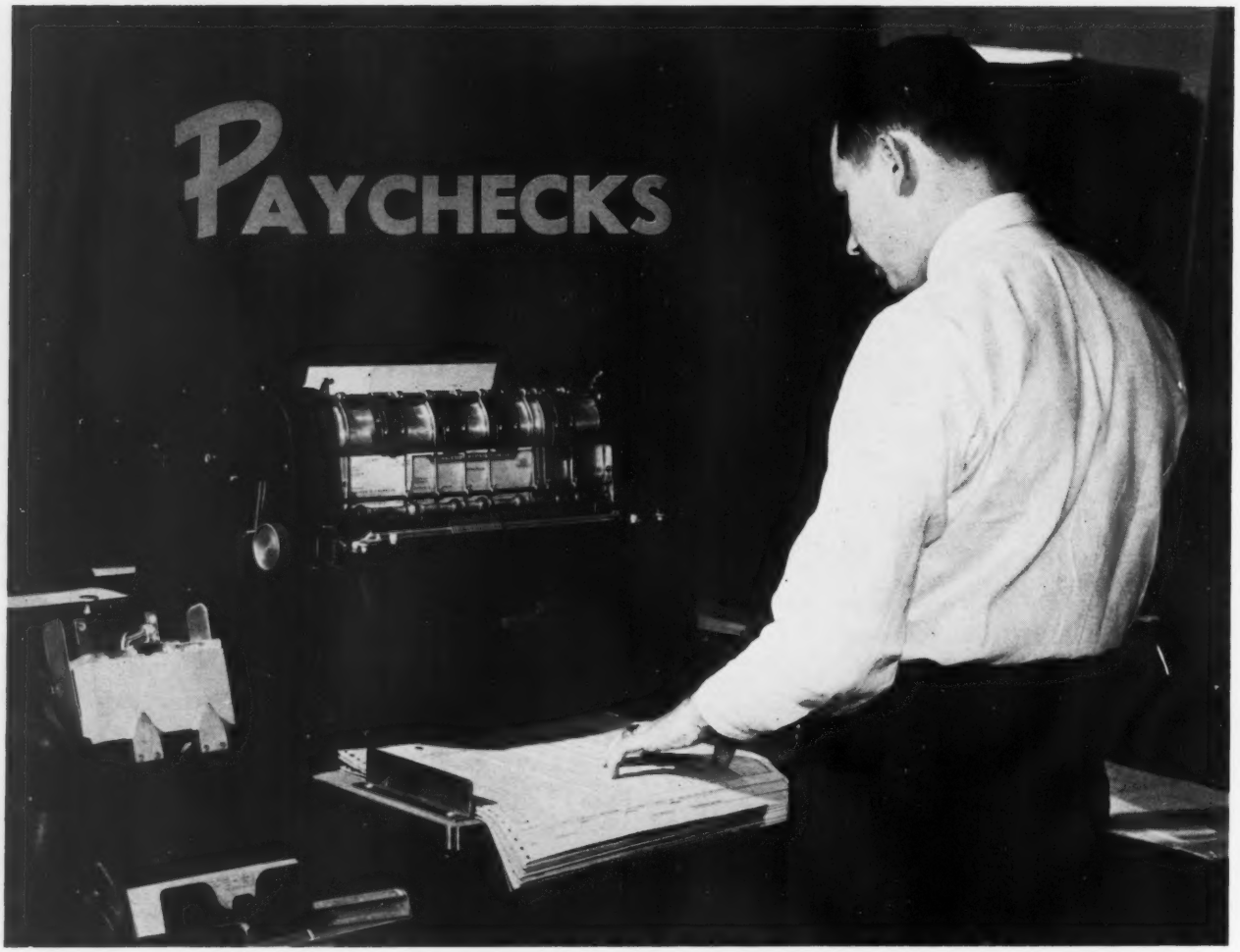
Gangpusher opens well to flow to tanks as soon as the substructure is clear.

On new location, work proceeds on assembling substructure, steam lines.



When steam is up, mast is raised and (right) crewmen rig up to drill new well.





Operator verifies the amount printed on the check with the amount shown on the payroll abstract. A paycheck is made as each employee's master card, earnings card, and deduction cards pass through the check-writing machine.

Machines help Treasury Department prepare accurate paychecks on time

ASK ALMOST anyone who works what is high on his list of important things in life and you will probably hear, "A regular paycheck, of course."

No matter where Humble employees work—in mountains, valleys, swamps, plains, or aboard an L.S.T. off the Louisiana coast—accurate paychecks are delivered to them on time just as surely as the postman delivers the mail.

To reach Humble's 18,500 employees spread from Florida to California, experienced personnel in the Treasury Department have devised four classes of payrolls: the Field, the Houston General Office, the Baytown Hourly, and the Private or Monthly Payroll. With some slight differences, each type is handled in about the same manner, and all checks, regardless of type or amount, are given the same careful handling and attention.

The steps followed in making up checks for the Humble Oil & Refining Company Field Payroll are a good example of how checks in general are produced. From timekeepers located in eight states come the time sheets which show the name, employee number, occupational code, rate of pay, and number of hours worked by each employee. The timekeepers also send in lists which show miscellaneous deductions, either required by law or authorized by employees for the period.

Rate clerks in the Field Payroll Section verify this information and send it to the Tabulating Section for a series of mechanical calculations and computations which end up as a stack of checks.

To begin with, operators key-punch the information contained in the ori-

ginal time sheets on electric accounting machine cards. An earnings card and several deduction cards are prepared for each employee. Individual cards are punched for each miscellaneous deduction. Deductions for all employees, including federal income and Social Security taxes withheld, average about one third of the total payroll.

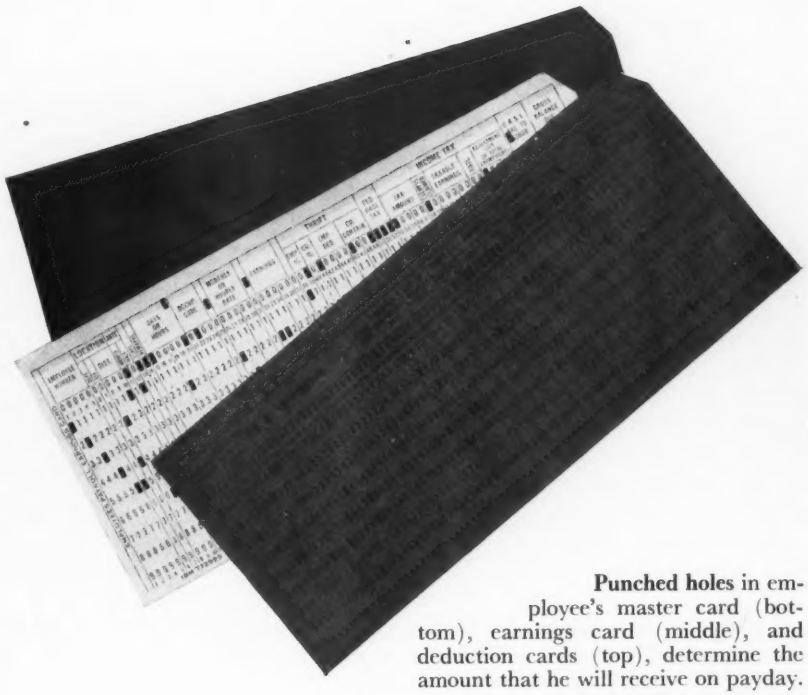
Master Cards Punched

Meanwhile, reproducing machine operators prepare master cards for the current pay period from the permanent master cards. Small holes punched in each employee's master card show his personal data: name, employee number, location and occupation codes, Annuity and Thrift contribution percentages, withholding tax deductions, hourly pay rate, hospitalization and group insurance premiums, and his Social Security tax deduction. Current and permanent master cards are different in that the current card shows only the deductions that are being made for that pay period.

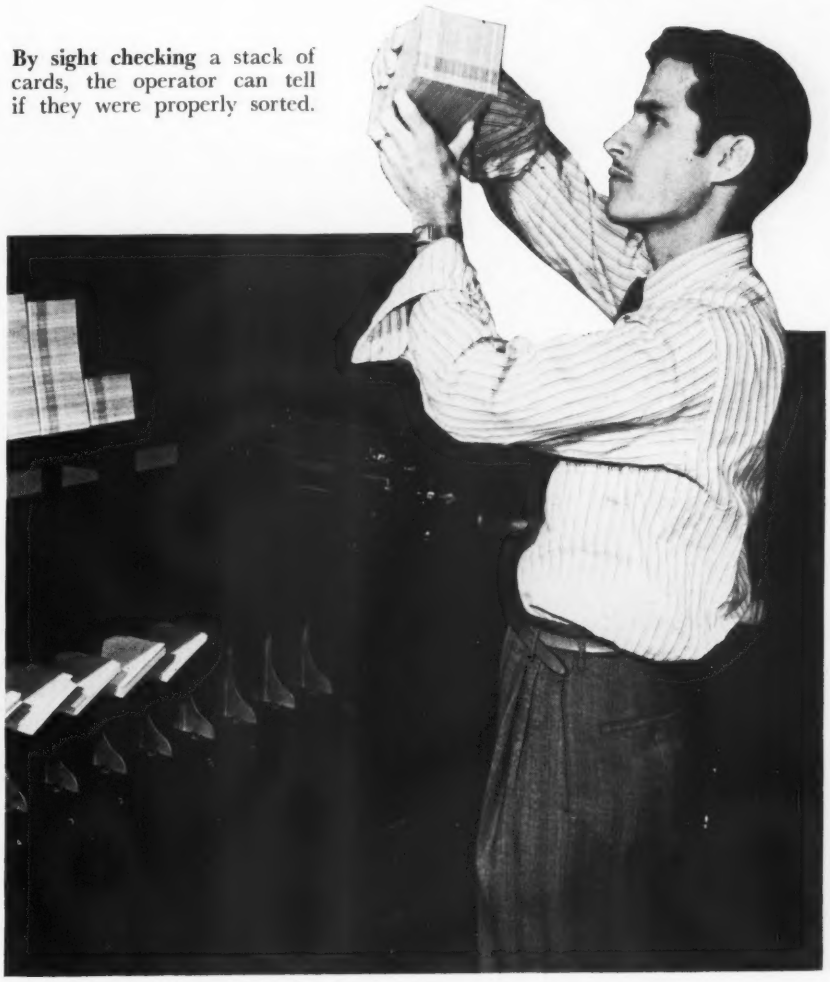
Perhaps the most interesting machine used in the preparation of paychecks is the calculator. As punched cards pass through it, intricate mechanisms begin the calculations that will eventually determine the amount payable to each employee. Pre-wired control panels determine the mathematical calculations that take place, for the calculator is sensitive only to those electrical impulses which the control panel is wired to detect. These impulses are caused when wire brushes make contact with metal rollers through the holes in the cards. As an indication of how complex this machine is, it takes an operator several years to become efficient in control panel wiring and job application.

The next machine—a collator—selects from two stacks of cards the master and earnings cards of each employee and puts them together. The procedure is repeated, but this time the several deduction cards are in one stack and the master and earnings cards are together in the other stack. Now the machine groups the master, earnings, and deduction cards by employee number.

Next, after an operator has set the



Punched holes in employee's master card (bottom), earnings card (middle), and deduction cards (top), determine the amount that he will receive on payday.



By sight checking a stack of cards, the operator can tell if they were properly sorted.

A team of two prepares accounting machine cards. First, a key-punch operator (left) punches the cards and then the verifier operator checks for any mistakes.

Master card file in the Field Payroll Section is frequently consulted to check pertinent data on employees or to bring individual pay information up to date.

controls, each employee's group of cards is run through a printer that transforms the story told by the punched holes into words and figures on a payroll abstract. This abstract is a written summary of the information on the cards.

Seventeen Checks a Minute

The last major step in the Tabulating Section is the automatic translation of the punched data into printed checks. Operators feed cards into a checkwriting machine which prints the employee's name and number, the ending date for the period covered, and the amount payable. This same information and itemized deductions are printed on the check stub at the same time. All this takes place at the rate of 17 checks a minute.

Just two and one-half working days are needed by the Tabulating Section to prepare the abstracts and checks. Upon completion, the control desk clerk forwards them to the Field Payroll Section where payroll clerks bank stamp and date the checks.

A protectograph perforates the amount payable on each check in such a way that it cannot be changed without detection. While this is being done, the machine also computes a total covered by the checks so it can be compared with the totals shown on the payroll abstract. This is but another of the many ways of verifying the checks' accuracy.

Pipe Line

In Humble Pipe Line Company, because of the smaller number of employees, the preparation of paychecks does not require the high degree of mechanization used by Humble Oil & Refining Company. However, there is no difference in the time element required in their preparation by either company.

Timesheets showing all pertinent information, including deductions, are sent to the home office.

Left, comptometer operators of the Field Payroll Section verify all calculations before the records are sent to the Tabulating Section. Cards are punched, abstract payrolls made, and checks are written without the aid of multipliers, collators, or interpreters.

Checks are forwarded to the Treasury Department for necessary entries and signing, and are then mailed directly to work locations for distribution.

When ready for signing, the abstracts, checks, and tapes are sent to the Cashier's Office where facsimile signatures are imprinted after verification of totals.

After the checks are signed, the Field Payroll Section distributes them. Payroll clerks put the checks for salaried people into individual envelopes, and bundle checks for hourly-rated employees by district location. Both kinds of checks are grouped by districts and are placed in registered envelopes for mailing.

Pay Dates Staggered

Staggered pay dates for the four different payrolls help equalize the flow of work and prevent time lags. Close coordination between all sections make it possible to complete a payroll in an average of four and one-half to five working days.

And so the work of producing paychecks goes on. Just as soon as one payroll is completed, men and machines start anew on another. It is a continuous job, calling for continuous vigilance. It is a big job, requiring a lot of complicated machinery and special skills. As is true wherever Humble people work, credit for getting this job done properly and on time goes not to machines, but to the people who control them. Those who are responsible for Humble paychecks take pride in seeing that each employee gets his check unfailingly and on time.

Cards are placed in calculating machine which computes and punches the results on 30 cards every minute.

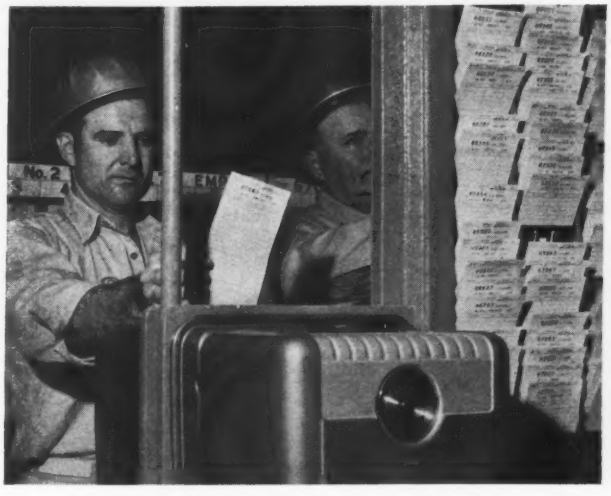
Refining

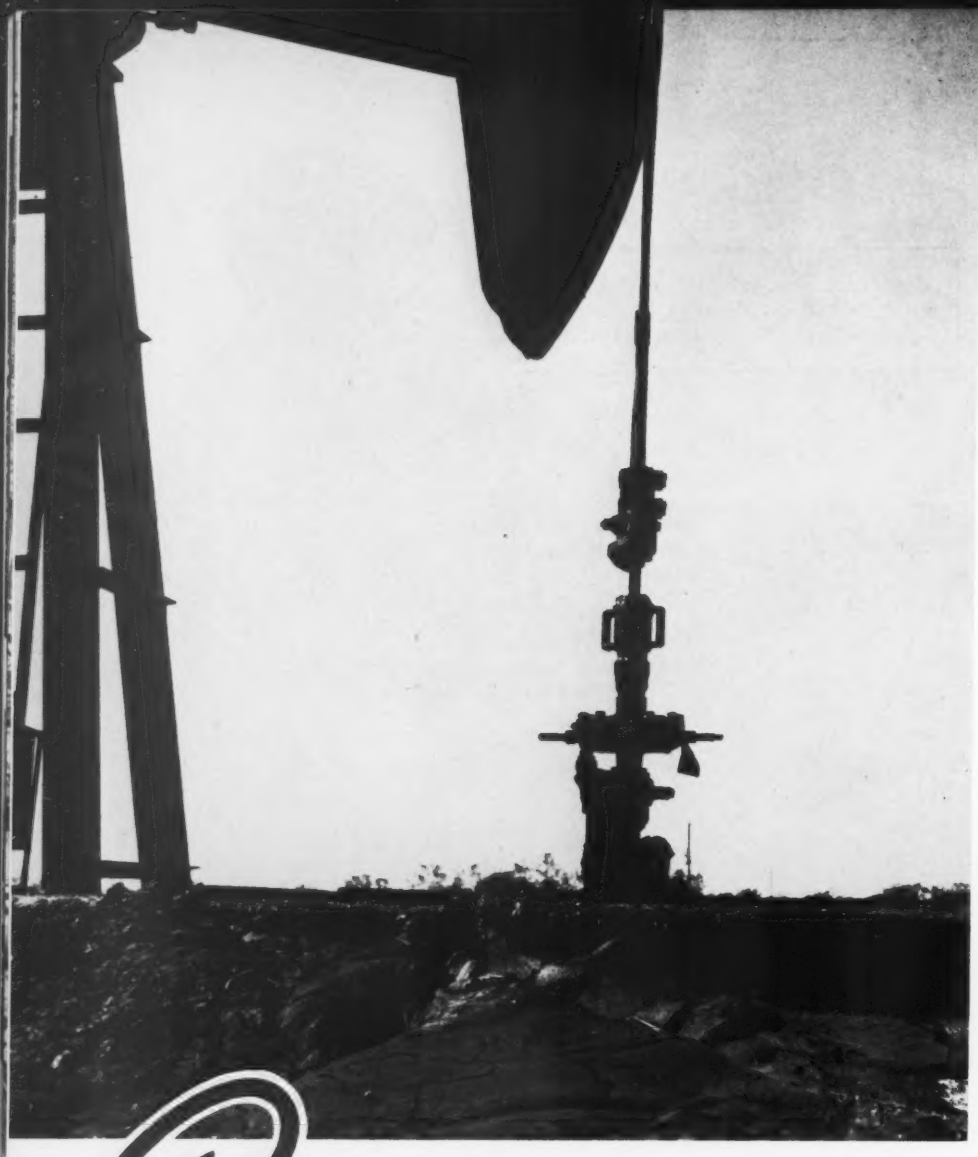
At Baytown Refinery, hourly employees record their time worked on Time Cards, which they punch in electric recorders (right) as they enter and leave the refinery. Each day, foremen make out time reports that show hours worked and at what rates.

An electronic machine speedily multiplies rates and time worked to give gross amounts earned. After preliminary calculations and tabulations, individual paychecks are written on continuous form paper instead of pre-cut forms.

These sheets of checks are finally sent to the "form buster" which trims the sides and cuts the sheets into separate checks at the rate of 300 per minute.

On pay day, employees receive their paychecks at designated pay windows upon presentation of identification badges.





PARAFFIN . . .

a field problem

HOUSEWIVES know paraffin as a snow-colored wax sealer which prevents home-canned preserves and other foods from spoiling. Craftsmen and trades-people point to many other useful products that are made from or are coated with it—candles, crayons, shipping containers, wax paper, floor polishes, medicinal salves and ointments—to name only a few. Even children find it acceptable, though somewhat tasteless, as a chewing gum.

But the men who produce crude oil that contains paraffin and those who maintain the pipe lines through which it travels to the refinery are not so enthusiastic. "Paraffin?" they exclaim. "It's a headache to us!"

Since Humble spends about $100,000 annually for aspirins to relieve this headache, the ailment is obviously more than just a minor indisposition.

Crude paraffin looks little like the finished products into which it is refined. It is a putty-like mixture of *crystalline* and *amorphous* waxes and asphaltic materials, usually black or brown in color, depending on the color of the crude oil in which it is contained. Sometimes it might even be bright green. The crystalline waxes are tiny needle-like or flaky particles that stay in solution in crude oil under high temperatures. Amorphous paraffin, on the other hand, is jelly-like and has no regular shapes such as crystalline particles have.

◊ **Crude paraffin** cleaned from this well is stacked up for picture purposes.

The cooling effect produced by gas expansion during oil production usually accounts for the accumulation of paraffin in well tubing. This temperature reduction is important because the quantity of paraffin that crude can hold in solution decreases as the temperature of the oil is lowered. Generally, little or no paraffin will accumulate in wells that produce considerable amounts of salt water with the oil because water holds heat better than oil and offsets the cooling action of the expanding gas.

In flowing wells, paraffin accumulates in the tubing and flow lines until the opening becomes so clogged that the oil flow is choked off. This obstruction is similar to the scale that builds up inside water pipes and often reduces the flow to a trickle. As one might suspect, the condition in flow lines during cold weather is worse than it is during hot weather.

In pumping wells, paraffin accumulates on both the *sucker rod* and the sides of the tubing until there is not enough room for the rods to move freely. Since the sucker rods connect a pumping unit on the surface to a pump inside the well, they must move up and down rather freely to keep the well pumping properly. When paraffin deposits become thick enough to slow down the well's productive capacity, they must be removed or the well will stop producing.

Although paraffin has been a problem in old fields, such as those in Pennsylvania and Wyoming, it did not reach its present major propor-

tions until the deep Texas and Louisiana coastal fields were developed. In some of the other newer areas, notably certain fields in West Texas and the Texas Panhandle, paraffin conditions have also been bothersome.

Remedies

Since no two wells are equally affected, there is no patent medicine which will cure all paraffin ailments. Many wells never give trouble even though the crude contains some paraffin.

To doctor those wells that need remedial attention, a variety of treatments is used. Some of these include the use of mechanical scrapers in flowing wells; circulating of hot oil, steaming, soluble plugs and mechanical scrapers in artificial lift wells. In flow lines it is sometimes necessary to use steam, oil-soluble moth balls and plugs, calcium carbide granules, plastic coated lines, or sometimes it is necessary to break out individual lines and heat them to remove stubborn paraffin deposits. BREAXIT 71, a chemical compound made by Humble, is being used successfully in a number of fields to reduce the tendency for paraffin to adhere to metal surfaces.

Humble's Anahuac field, for example, has a severe paraffin problem. There, wells must be scraped every two months—this despite the fact that the produced crude leaves only traces of paraffin in the pipe line through which it is pumped to Baytown Refinery.

To scrape a continuously flowed well at Anahuac field, the well flow is shut down. Then a *gin pole* and *lubricator* are erected on the Christmas tree to permit a metal scraper to be lowered on a wire line to about 2,500 feet inside the well. At depths below 2,500 feet, the heat of the oil normally keeps paraffin in solution. As the scraper goes down and then comes back up, it chews paraffin from the walls of the tubing. Some of it sticks to the scraper, and the rest is flowed out with the oil.

After the well has been scraped, the operation is repeated to see if any paraffin remains on the tubing walls. This *check run* usually shows that the paraffin has been removed.

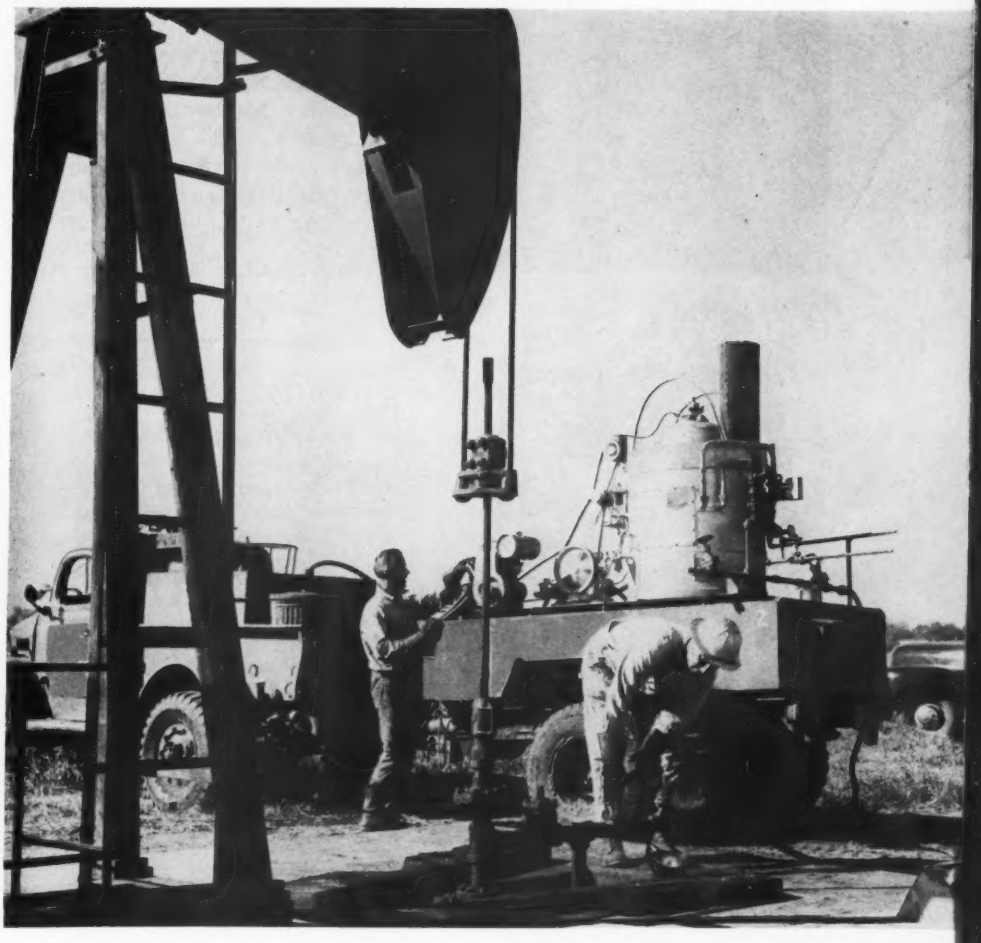
Paraffin, the headache of production men in field operations, has useful applications in manufacture of many everyday products.

Pressure is then bled off the lubricator, and the gin pole and lubricator are taken down. The regular choke is put back on the flow line, and the operation is complete.

On *stop-cocked* wells, those which are flowed a few hours each day until they produce their daily allowable and then are closed down, automatic scrapers or fluid drills are used. These scrapers are placed in the tubing and are allowed to remain there. As the well is produced, the scraper rises with the fluid and scrapes paraffin from the walls of the tubing. When the well is closed down, the scraper drops through the fluid to the tubing stop which has been set 3,000 feet below the surface of the ground. These automatic scrapers cannot be used on continuously flowed wells because the upward flow of the oil would keep them at the top of the well.

When flow lines between the well and tank battery clog up, they are steam cleaned. The heat of the steam which is forced through the lines

Gangpusher opens valve that allows steam from portable boiler to enter flow line from pumping well to the tank battery. Heat of steam melts paraffin deposits.



Gin pole and lubricator are erected to lower metal scraper into well tubing.

Operator greases wire line as it spins from spool in paraffin cutting truck.

Covered with paraffin, the scraper is inspected after its trip into the well.

under high pressure by special portable boiler equipment melts the paraffin and causes it to flow with the oil. Sometimes, hot oil is injected into well tubings and a similar reaction takes place.

Pipe Line Problem

Paraffin problems do not always stop when crude oil has been produced and stored in tanks to await a pipe line trip to the refinery. Although it is not true in all cases, pipe line stations which are located in areas that are notorious paraffin producers usually have their troubles, too. Oil flows through pipe lines under much lower temperatures than when it was deep within the earth. If paraffin particles float in the oil run through pipe lines, they may separate and stick to the inner walls of the lines.

Stations which transmit different grades of oil can often clear out these deposits by running non-paraffin base crude through congested lines. This solvent-like action is similar to that which takes place when flushing oil is used to remove carbon and sludge deposits from automobile crankcases. Frequently, however, some stations pump only paraffinic oil through their lines. So, there must be some way of keeping these lines from plugging.

Putting in the Pig

When pipeliners say they are going to "put in the pig" to clear out a paraffin-congested line, the uninitiated may be astonished. And well he might be until he learns this pig is not a real one but is a metal scraper which is forced through the line by oil under pressure behind it.

Where scraping is done regularly because of heavy paraffin deposits, special traps are constructed for inserting and removing the pig. But where scraping is done infrequently, a special field problem is created. First, the engineer must close the valve on the line to be scraped. Pipeliners then dig down to the line, remove the *bull plug* from the end of it, put in the pig, and then replace the plug. The valve is re-opened to let oil back into the line, and pressure is built up to force the pig through the line.

It's a long step from the time that paraffin first comes out of the ground with crude oil—then flows with the oil through pipe lines to the refinery where wax is removed in one of the steps in making motor oil. From there the refined wax is shipped to manufacturers and pharmaceutical houses to serve as bases for finished products. If it were not thus useful, paraffin would be more annoying than ever to the men who produce oil. But because of their problem-child, every household knows a greater measure of comfort and convenience.

Pig enters line, below. Then pipeliners tighten up on the bull plug as pressure is built up to force pig through. Line walkers in background listen for the clicking sound pig makes when it strikes joints inside line; this helps them follow pig's progress.

THEY HAVE RETIRED

Since the last report in these columns, six long-time employees of the Humble Companies have retired, all of them with more than 20 years' service.

Production Department — Hugh F. King, assistant district chief clerk at Friendswood, retired on November 1 after almost 25 years' service. He began with the Company as a laborer at Wortham, and later worked at many points in the East Texas and Gulf Coast Divisions. At a retirement party he was presented household gifts and Company service awards. He is retiring to his small ranch at Pipe Creek, near Bandera, where he will be able to hunt with still another retirement gift, a shotgun.

Robert N. Nolley, toolpusher in the Maurbro District, retired on November 5 after 30 years' service. He started with Humble as a rotary helper at West Columbia, and had worked in the Gulf Coast, East Texas, and Southwest Texas Divisions and six months in South America. Last summer he relieved as district superintendent in the Maurbro District. Fellow employees gave him household gifts at a retirement party, and Division Superintendent R. E. Bridges presented him Company service awards. Nolley plans to raise cattle on his ranch near Houston.

John W. Pickens, witness gauger in the London District, retired on November 12 after almost 22 years' service. He was employed as a pumper at Cross Cut. Later he worked at Kilgore and at London where he was the area's first pumper. Flowers and landscaping will occupy his attention at his new home, 5874 Quinn Street, Bell, California.

Baytown Refinery — Daniel J. Holland, railroad foreman, retired on November 10 after more than 29 years' service. His wartime handling of tank car shipments, which reached an all-time high for the refinery, was outstanding. Retirement presents from fellow workers included a television set; service awards were presented by C. E. Rodecape, superintendent of the Oil Movements Division. Holland plans to stay at his home near Baytown and devote time to his flowers, lawn, and his three grandchildren.

Thomas C. Smith, shift supervisor in the Pumping and Gauging Department, retired on November 1 after more than 28 years' service at Baytown Refinery where he began as a laborer. He is considering buying some land near San Marcos and raising cattle and turkeys, but does not plan to let this interfere too much with his hunting and fishing. Fellow employees presented him with a 300-Savage deer rifle.

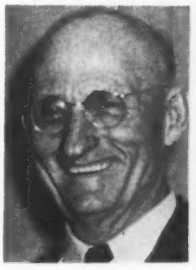
Humble Pipe Line Company — Ivar H. Heide, connection foreman at Luling, retired on November 1 after more than 28 years' service. Employed as a laborer at Ward, he has since worked at many of the pump stations in Humble Pipe Line Company's system throughout Texas. He plans to spend the winters in Florida and the summers in Colorado.

Heide

King

Smith

Holland



Nolley

Pickens

Supplemental Benefit For Annuitants

Humble's liberalized program for supplementing the annuities of employees who retired before October 1, 1948, in effect for the past year, will be continued through September 30, 1950. The program announced recently includes these provisions:

Annuitants retired prior to October 1, 1948, whose income from Company retirement programs and Social Security Act benefits is less than $250, are eligible for supplemental allowances from the Company. The minimum supplement payable each month is $25 unless the total income from Company programs and Social Security is more than $225 a month. In such event, the supplement is only the amount necessary to bring up the monthly income from these sources to $250 a month.

For most annuitants the allowance will be the same as it was during the first year of the program's operation. However, annuitants who have become eligible since October 1, 1948, for a primary benefit under the Social Security Act, or who have had a change in the amount of their retirement income since that date, will have a change in the amount of their supplemental annuities.

Supplemental annuities, based on one per cent of total earnings during the period from January 1, 1936, through December 31, 1945, payable to employees who retire after October 1, 1948, are not affected by the continuation of this allowance to annuitants who retired before October 1, 1948.

By the way...

Refinery Employee Honored

Leon P. Crawford (left), pipefitter third class, who saved the life of fellow worker, S. H. Page (center), at Baytown Refinery last January, was awarded the National Safety Council's President's Medal on November 17, by Humble President Hines H. Baker.

In making the presentation before 600 fellow workers in the refinery's new central shop building, Mr. Baker said: "This is the maximum achievement in human endeavor—the saving of a life."

Crawford's knowledge of first aid enabled him to revive Page by using the Schafer Prone pressure method of artificial respiration after he had been overcome by sulphide gas fumes.

Deaths

Active employees who have died are: James E. Barnez, 63, engineer on Main Line "D" at Friendswood, on November 14 . . . Mila M. Heaslet, 41, janitress, Accounting and General, Baytown Refinery, on November 23 . . . John M. Humphries, 60, map draftsman in the Engineering Department, Houston Office, on October 15 . . . Miledge F. Miles, 46, machinist supervisor, Baytown Refinery, on November 28 . . . Edward D. Miller, 61, pumper heavy duty, Greta District, on November 2 . . . Paul E. Pyka, 44, yard supervisor at Baytown Refinery, on October 19 . . . Henry L. Sadik, Sr., 61, specialties supervisor in the Compound Plant, Baytown Refinery, on October 20 . . . Ernest P. Schwerdtfeger, 59, account collector, Sales Accounting Office, Houston Office, on October 4 . . . and Samuel R. Whittaker, 59, senior clerical supervisor, Crude Oil Accounting Office, Houston Office on November 5.

Annuitants: David C. Gunter, 56, assistant district gauger at London District before his retirement, died on October 1 . . . Beulah M. Livesay, 61, recording clerk in the Land Records and Rentals Division, Houston Office, before her retirement, died on November 1 . . . and Aron E. Shefers, 65, night superintendent of the Process Control Department at Baytown Refinery before his retirement, died on November 10.

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Published every other month for employees and stockholders

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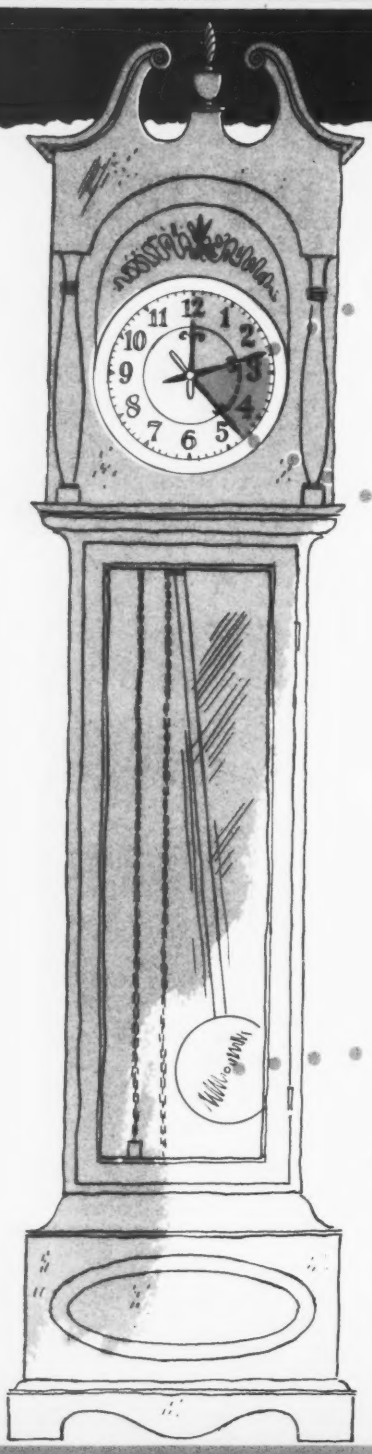
Barges help keep the supply of oil in balance with demand along inland waterways such as the Mississippi River, the Great Lakes, and the Intracoastal Canal on the Gulf Coast.

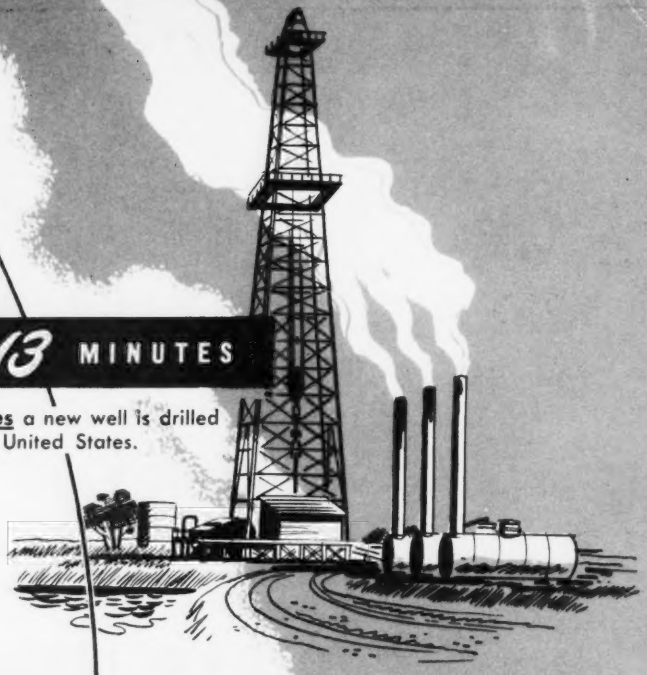
such
Coast.

AS TIME GOES BY...



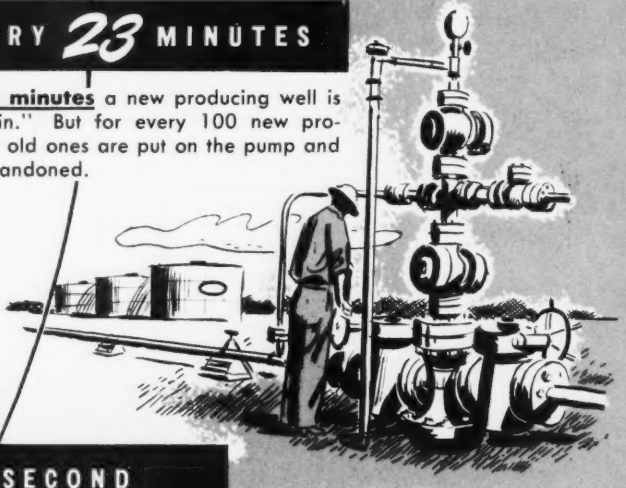
EVERY 13 MINUTES

Every 13 minutes a new well is drilled somewhere in the United States.



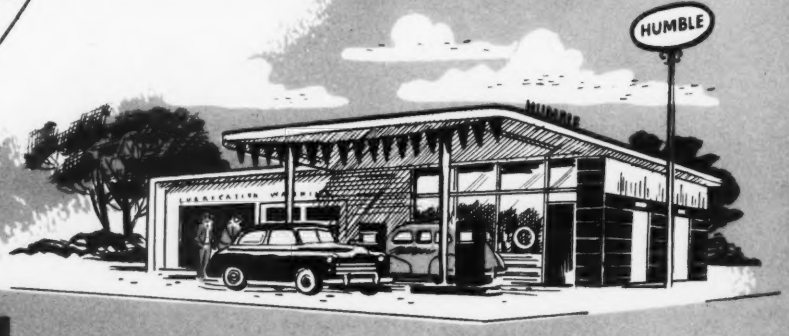
EVERY 23 MINUTES

Every 23 minutes a new producing well is "brought in." But for every 100 new producers, 58 old ones are put on the pump and 57 are abandoned.



EVERY SECOND

Every time your watch ticks off a second, 2,900 gallons of oil are consumed in the United States.



24 HOURS A DAY

The Oil Industry Works To Keep America Supplied